Qualification objectives

Key facts:	
Title:	Advance Assessments Level 4 Diploma: Improvement Practitioner
RQF level:	4 (= first year of a Bachelors degree / HNC / BTEC)
General entry requirements:	*General entry requirements apply in addition to specific requirements for Application Routes 1-4. These requirements must be in place before application and cannot be fulfilled during the qualification.* Learners must have achieved Level 2 qualifications in Mathematics and English Language before registration. Typically these will be GCSE Grade 4/C standard passes in Maths and English Language. For learners with an education, health and care plan (EHCP) or legacy statement, the Mathematics and English Language minimum entry requirement is Level 3. A British Sign Language (BSL) qualification is an alternative to the English Language qualification requirement for those whose primary language is BSL.
Credits:	120 (= one year of full time study)
Total Qualification Time:	1,200 hours (= one year of full time study)
Guided Learning Time:	432 hours (for example, 12 hours per week over 36 weeks)

Definitions:
Total Qualification Time is the estimated time required to complete a qualification including unsupervised learning, independent research/learning, and Guided Learning. Guided Learning is learning and assessment that is supervised in real time by a teacher.

Purpose of the qualification

The qualification prepares learners for work in improvement roles. Improvement of operational outputs (services and products), and improvement of work processes, requiring the leadership and delivery of organisational change through continuous, incremental and breakthrough improvement techniques.

The learning outcomes for this qualification have been fully mapped against Occupational Standard ST0192 for Improvement Practitioners published by the Institute for Apprenticeships and Technical Education (IfATE). Advance Assessments intends to submit this qualification to IfATE for approval as a Higher Technical Qualification.

Job titles associated with improvement practice include, but are not limited to: Business Improvement Practitioner, Continuous Improvement Manager, Process Owner, Process Improvement Manager, Process Excellence Manager, Lean Six Sigma Green Belt, Process Analyst, Improvement Analyst, Quality Control Analyst, Compliance Manager, Engineer (Mechanical, Civil, Chemical, Geotechnical, Environmental, Transportation etc), Environmental Data Analyst, Health and Safety Officer.

Prior attainment, knowledge and skills

<u>Entry requirements: Route 1 (Qualifications)</u>

No specific prior knowledge or experience of operations management has been assumed for those applicants seeking entry to the qualification through Route 1. In addition to satisfying the general entry requirements stated above ('Key Facts'), applicants should hold ONE of the four following qualifications at the point of application:

- A Levels:
  Minimum CCC or 96 UCAS tariff points

- BTEC:
  Minimum Extended Diploma MMM

- International Baccalaureate:
  28 points, with three subjects at Higher level

- Access to HE Diploma:
  Pass with 60 credits overall. Level 3 STEM modules preferred. At least 45 credits at level 3 with 24 credits at merit or above.

Entry requirements: Route 2 (L4 Apprenticeship: Recognition of Prior Learning)

In addition to satisfying the general entry requirements stated above ('Key Facts'), applicants who have successfully completed the L4 Apprenticeship ST0192 Improvement Practitioner will be eligible for entry to the qualification with advanced standing through Recognition of Prior Learning (RPL) and will not have to complete the capstone project module *4400001 Applied improvement solutions*. This route will be available up to five years from completion of end-point assessment.

Entry requirements: Route 3 (L3 'Feeder' Apprenticeships)
In addition to satisfying the general entry requirements stated above ('Key Facts'), applicants who have successfully completed either of the two 'feeder' apprenticeships for ST0192 Improvement Practitioner (ST0193 Level 3 Improvement Technician or ST0384 Level 3 Team Leader) will be eligible for registration on the qualification.

Entry requirements: Route 4 (work experience)

In addition to satisfying the general entry requirements stated above ('Key Facts'), applicants without formal RQF Level 3 qualifications who have significant relevant workplace experience, will be considered for entry on an individual basis. This will require some assessment of work experience against one of the occupational standards for the Level 3 feeder apprenticeships for this qualification (ST0193 Level 3 Improvement Technician or ST0384 Level 3 Team Leader), and is entirely at the discretion of Advance Assessments Ltd. Route 4 applicants may not apply for additional Recognition of Prior Learning or Recognition of Prior Experience.

Delivery

The design of this qualification, its modules and Total Qualification Time, have been arranged with the needs of Higher and Further education institutions in mind. Full time study would entail three trimesters of study, with 12 weeks, 40 credits and 144 hours of contact time ('guided learning hours') per trimester. Full time delivery could be managed conveniently over two full days on campus.

Part time study is facilitated by the design of the qualification. This would entail six trimesters of study with 20 credits and 72 hours of guided learning per trimester. Part time delivery could be managed conveniently over one full day on campus, which raises the prospect of a traditional 'day release' delivery for learners supported by an employer.

Progression

Advance Assessments recognises the need for routes to achieve technical competence other than apprenticeships; this vocational qualification is accessible to all, including learners studying independently. The qualification is designed to maximise transferability. Relevant

modules have been mapped to the Apprenticeship standard ST0192 L4 Improvement Practitioner, which allows inward Recognition of Prior Learning (RPL) for learners who have already completed a Level 4 Improvement Practitioner Apprenticeship.

Higher Technical Qualifications, like the more established BTEC HNCs and HNDs which preceded them, are intended in part to provide progression routes to Higher Education. We have designed this HTQ to be fully compatible with FHEQ, the qualification design framework for Higher Education. It would be straightforward for a Higher or Further Education institution to arrange progression from the HTQ to the second year of a relevant Bachelor degree programme using an RPL tariff.

Progression to a Level 5 Higher Technical Qualification or Apprenticeship would also be possible – the most relevant would be ST0385 Level 5 Operations Manager. Advance Assessments' specification for this qualification has been designed specifically to allow progression from relevant Level 4 HTQs including Improvement Practitioner, with a minimum of repetition, duplication or overlap.

In terms of career progression, the qualification would support an improvement worker moving from a role roughly equivalent to Six Sigma Yellow Belt (perhaps a quality team member capable of working under supervision to contribute to improvement projects) to Six Sigma Green Belt (capable of proposing and initiating small improvement projects with some autonomy and some supervision from a Black Belt; capable of managing a workpackage in a larger improvement project with some supervision from a Black Belt).

Qualification structure, content and assessment

Key facts:

Module	RQF credits	Summary of module aim
4100001 Ethics, sustainability and compliance	10	To provide learners with the perspectives and techniques necessary to operate ethically within complex change environments.
4100002 Describing and sampling data	10	To provide learners with a grounding in descriptive statistics and data visualisation techniques as a precursor to developing skills in control charting and the inferential statistical analyses used in application to process and output problems.
4100003 Developing individuals and teams	10	To equip learners with appropriate techniques for managing themselves, team members and wider stakeholders, as well as identifying and reflecting on their development as practitioners.
4100004 Process improvement	10	To provide learners with the necessary knowledge and skills to understand work processes, activities and resources in an organised and granular way, and act on this understanding to improve them and sustain improvements.
4100005 Managing improvement and change projects	10	To provide learners with the techniques and skills necessary to independently scope, plan and evaluate a change project, as well as an appreciation of the political and team factors which must be observed to execute change projects sensitively within an organisational context.
4100006 Statistical process control	10	To provide learners with the knowledge and skills necessary to identify the source(s) of process problems, investigate and where necessary monitor them using process-derived quantitative data.
4100007 Design of experiments	10	To provide learners with the knowledge and skills required to design and execute accurate experimental designs suitable for self-contained improvement projects up to Six Sigma Green Belt level.
4100008 Measurement systems analysis	10	To provide learners with the ability to apply fundamental measurement systems principles in the design and execution of improvement projects in the interests of reliable outcomes.
4400001 Applied improvement solutions	40	This ‘capstone’ module gives learners the opportunity to scope, plan, execute and review an improvement project, and then report its outcomes in ways that are optimally useful for stakeholders within the work organisation.

4100001 Ethics, sustainability and compliance

Aim	**Purpose**
In any organisation, there is a fundamental requirement for change agents to understand and work with the internal and external drivers of change, including stakeholders, while anticipating ethical, sustainability and regulatory implications. This module will provide learners with the perspectives and techniques necessary to operate ethically within complex organisational environments.	On completion of this module, learners will be able to evaluate the drivers and contexts for change initiatives. These include law, regulation, the competitive and institutional environment, as well as the ethical and sustainability imperatives which affect them. Learners will be able to identify and categorise relevant stakeholders as a precursor to engaging them effectively and ensuring that their needs are met.

Learning outcomes

LO1: Select and apply appropriate techniques for analysing the macro, competitive and micro environments of a work organisation

LO2: Identify, interpret and apply relevant legal, governmental or industry regulations affecting organisational sustainability.

LO3: Identify and categorise stakeholders using approaches relevant to specific work contexts

LO4: Relate organisational and individual behaviour to morally, legally and socially desirable norms and values

LO5: Benchmark environments and peer organisations to set appropriate targets for sustainable organisational performance

Assessment: 2 hours exam duration			**Rationale**
- 1 hour objective response (multiple-choice question) exam covering LO1 and LO3 - 1 hour constructed response (open-notes) exam covering LO2, LO4 and LO5			Knowledge components of this module are specific and readily testable through multiple choice questions. The requirement to apply knowledge and consider specific sector contexts is covered through an open-notes exam which will allow more tailored and sustained responses.
RQF credits	**Module learning time**	**Guided learning time**	
10	100 hours	36 hours	

4100002 Describing and sampling data

<table>
<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>The ability to work with quantitative datasets is fundamental to the effective management and improvement of work processes and product/service outputs. This module will provide learners with a grounding in descriptive statistics and data visualisation techniques as a precursor to developing skills in control charting and the inferential statistical analyses used in application to process and output problems.</td><td>On completion of this module, learners will be able to recognise the characteristics and analytic applications of different types of quantitative data. They will be able to produce and interpret measures of central tendency, visualise and describe distributions, interpret trends in longitudinal quantitative data, select and apply appropriate sampling methods for large quantitative datasets.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Recognise characteristics and applications of nominal, ordinal, interval and ratio data

LO2: Describe and visualise continuous quantitative data in terms of distribution characteristics

LO3: Visualise and interpret trends in longitudinal qualtitative data

LO4: Apply sampling principles to quantitative datasets

LO5: Use software applications to produce descriptive statistics and visualisations</td></tr>
<tr><th>Assessment: 2 hours exam duration</th><th>Rationale</th></tr>
<tr><td>- 1 hour objective response (multiple-choice question) exam covering LO1, LO2 and (partially) LO3
- 1 hour constructed response (open-notes) exam covering (partially) LO3, LO4 and LO5.

<table><tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr><tr><td>10</td><td>100 hours</td><td>36 hours</td></tr></table></td><td>This is an introductory technical module and the use of a multiple-choice question exam is supported by the requirement to assess foundational technical knoweldge.

An open-notes exam provides the capacity to test data skills cumulatively in specific contexts.</td></tr>
</table>

4100003 Developing individuals and teams

<table>
<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>Working effectively with others – including team members and wider stakeholders – is essential to the formation of high performing teams and sustaining operational performance. The ability to plan, and evaluate, own personal and professional development is crucial in becoming effective in team roles. This module will equip learners with appropriate techniques for managing themselves, team members and wider stakeholders, as well as identifying and reflecting on their development as practitioners.</td><td>On completion of this module, learners will be able to evaluate a range of situations and contexts involving the need to communicate effectively with team members and wider stakeholders to the work organisation. They will be able to balance individual and organisational factors in managing their own performance and the performance of team members. They will be able to identify areas of strength and required development within their own skillset, knowledge base and behaviours.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Apply principles of team formation, leadership and management in specific work cultures and contexts

LO2: Communicate appropriately to support, develop and incentivise performance of individuals and teams

LO3: Evaluate and engage internal and external stakeholders

LO4: Balance individual and organisational factors in managing performance of self and others

LO5: Plan and evaluate own personal, professional and ethical development for current and future roles</td></tr>
<tr><th>Assessment: 2,000 word assignment</th><th>Rationale</th></tr>
<tr><td>- 2,000 word written assignment (personal development plan) covering all LOs

<table><tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr><tr><td>10</td><td>100 hours</td><td>36 hours</td></tr></table></td><td>The written assignment is individual and underpins an ongoing process of personal and professional development planning and review, which will culminate in the final ‘capstone’ project (see module specification for module 4400001 Applied improvement solutions).</td></tr>
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4100004 Process improvement

<table>
<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>In any work organisation large enough to have defined outputs, service levels and functionally specialised work, there is a need to continually scrutinise and improve work processes to serve customers better while maintaining and improving efficiency and sustainability. This module will provide learners with the necessary knowledge and skills to understand work processes, activities and resources in an organised and granular way, and act on this understanding to improve them and sustain these improvements.</td><td>On completion of this module, learners will be able to select from a range of methods and tools suitable for process improvement in particular service, production and logistic contexts. They will be able to map and visualise processes to understand their constituent activities and resources, as a precursor to identifying and eliminating waste and/or optimising value generated for the end customer.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Outline the characteristics and applications of process improvement methodologies

LO2: Define process problems using structured approaches

LO3: Distinguish the voice of the customer, voice of the business and voice of the process

LO4: Visualise the activities, resources and ownership of work processes using flow charts

LO5: Interpret process flow and layout charts in terms of value to the customer and potentially wasteful activities and resources</td></tr>
<tr><th>Assessment:
2,000 word assignment</th><th>Rationale</th></tr>
<tr><td>- 2,000 word written assignment covering all LOs

<table><tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr><tr><td>10</td><td>100 hours</td><td>36 hours</td></tr></table></td><td>This is an introductory technical module.A written assignment gives learners the opportunity to apply their knowledge of process improvement tools and techniques to specific case scenarios and produce charts of processes and layouts.</td></tr>
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4100005 Managing improvement and change projects

<table>
<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>The ability to scope, plan and execute a change project, whether this involves incremental or breakthrough improvement, is essential to improvement practice. This module will provide learners with the techniques and skills necessary to independently scope, plan and evaluate a change project, as well as an appreciation of the team and political factors which must be observed to execute change projects sensitively within an organisational context.</td><td>On completion of this module, learners will be able to negotiate a business case and agree specific deliverables and outcome measures for a small/self-contained change project with a project sponsor and/or client. They will be able to select appropriate scoping, planning, execution and monitoring/review techniques in relation to the scale and scope of organisational change required. They will be able to deploy these techniques with minimal supervision.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Explain and manage individual and team reactions to change

LO2: Scope an organisational change project

LO3: Plan an organisational change project

LO4: Monitor and review an organisational change project

LO5: Select appropriate project methodologies based on the characteristics of organisational change and process improvement projects</td></tr>
<tr><th>Assessment: 2 hours exam duration</th><th>Rationale</th></tr>
<tr><td>- 1 hour objective response (multiple-choice question) exam covering (partially) LO2, LO3 and LO4
- 1 hour constructed response (open-notes) exam covering LO1, LO5 and (partially) LO2, LO3 and LO4

<table>
<tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr>
<tr><td>10</td><td>100 hours</td><td>36 hours</td></tr>
</table>
</td><td>The division of assessment for this module is horizontal rather than vertical. There are specific knowledge objects relating to project methods, tools and techniques which are suitable for assessment through multiple choice exams. These can be further consolidated and contextualised through an open-notes exam requiring analytic and evaluative responses to specific project scenarios.</td></tr>
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4100006 Statistical process control

<table>
<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>In work organisations with sufficiently high volume service, production and/or logistic processes, quantitative analysis of process characteristics and potential problems is a significant improvement opportunity. This module will provide learners with the knowledge and skills necessary to identify the source(s) of process problems, investigate and if necessary monitor them using process-derived quantitative data.</td><td>On completion of this module, learners will be able to identify and structure process problems, including how to categorise failure modes and their potential effects. This module will provide learners with the knowledge and skills necessary to obtain relevant quantitative data from work processes and resources, and use this for the purpose of calculating their capacity and stability. Learners will be provided with the knowledge and skills to select appropriate types of control chart and deploy these for ongoing monitoring and evaluation of statistical control.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Select appropriate methods to structure and define process problems

LO2: Deploy appropriate techniques for root cause analysis to investigate specific process problems

LO3: Calculate process capability

LO4: Interpret control charts to determine process stability

LO5: Identify failure modes and effects</td></tr>
<tr><th>Assessment: 2 hours exam duration</th><th>Rationale</th></tr>
<tr><td>- 1 hour objective response (multiple-choice question) exam covering LO1 and (partially) LO2, LO3, LO4 and LO5
- 1 hour constructed response (open-notes) exam covering (partially) LO2, LO3, LO4 and LO5

<table><tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr><tr><td>10</td><td>100 hours</td><td>36 hours</td></tr></table></td><td>This is an intermediate technical module and the use of a multiple-choice question exam is supported by the requirement to assess technical knowledge.

An open-notes exam provides the capacity to test statistical process control skills more holistically in specific contexts.</td></tr>
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4100007 Design of experiments

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<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>In situations of process complexity, the ability to isolate problem factors is crucial. Design of experiments can be an essential first step in diagnosing the causes of process issues. This module will provide learners with the knowledge and skills required to design and execute accurate experimental designs suitable for self-contained improvement projects up to Six Sigma Green Belt level.</td><td>On completion of this module, learners will be able to apply validity and reliability concepts in the design and evaluation of experiments to determine the root cause of process issues and the outcomes of improvement projects. They will be able to isolate and relate multiple input and output factors and select appropriate quantitative measures for them, setting null-format hypotheses to guide experiments and assess their outcomes using inferential statistics.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Explain the applications of active and passive analytics in terms of validity and reliability

LO2: Select and manipulate input and output factors

LO3: Develop MECE hypotheses in the null format

LO4: Define and recognize Type I and Type II errors

LO5: Use appropriate statistical tests to confirm or reject hypotheses</td></tr>
<tr><th>Assessment: 2 hours exam duration</th><th>Rationale</th></tr>
<tr><td>- 1 hour objective response (multiple-choice question) exam covering (partially) LO2, LO3, LO4 and LO5

- 1 hour constructed response (open-notes) exam covering (partially) LO2, LO3, LO4 and LO5</td><td rowspan="2">This is an intermediate technical module and the use of a multiple-choice question exam is supported by the requirement to assess technical knowledge.

An open-notes exam provides the capacity to test experiment design skills more holistically in specific contexts.</td></tr>
<tr><td>
<table>
<tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr>
<tr><td>10</td><td>100 hours</td><td>36 hours</td></tr>
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4100008 Measurement systems analysis

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<tr><th>Aim</th><th>Purpose</th></tr>
<tr><td>In the context of process improvement, measurement systems comprise the measures chosen to establish levels of process performance as well as the methods used to gather performance data. The capability of measurement systems, and their propensity for instability and error, should always be known before relying on process-derived data in initiating improvement projects. This module will provide learners with the ability to apply fundamental measurement systems principles to the design and execution of improvement projects in the interests of reliable outcomes.</td><td>On completion of this module, learners will be able to determine broad approaches to measurement systems analysis based on application to a specific process improvement project. They will be able to explain gauge repeatability and reproducibility as fundamental properties of measurement systems, acting on this knowledge to determine measurement error, drawing reliable inferences as to the capability and stability of a measurement system. They will be able to investigate and propose improvements to measurement systems for the purpose of measuring performance in process improvement projects as well as ongoing business operations.</td></tr>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">LO1: Explain and apply gauge repeatability and reproducibility principles

LO2: Determine appropriate levels and approaches to measurement systems analysis for specific applications

LO3: Analyse measurement error to determine the capability of a measurement system

LO4: Analyse measurement error to determine the stability of a measurement system

LO5: Assess and interpret the results of a measurement systems analysis study</td></tr>
<tr><th>Assessment: 2 hours exam duration</th><th>Rationale</th></tr>
<tr><td>- 1 hour objective response (multiple-choice question) exam covering (partially) LO1, LO3, LO4 and LO5
- 1 hour constructed response (open-notes) exam covering LO2 and (partially) LO1, LO3, LO4 and LO5</td><td rowspan="2">This is an intermediate technical module and the use of a multiple-choice question exam is supported by the requirement to assess technical knowledge.

An open-notes exam provides the capacity to test measurement system analysis skills more holistically in specific contexts.</td></tr>
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<table>
<tr><th>RQF credits</th><th>Module learning time</th><th>Guided learning time</th></tr>
<tr><td>10</td><td>100 hours</td><td>36 hours</td></tr>
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4400001 Applied improvement solutions

Aim	**Purpose**
The ability to scope, plan, execute and review an improvement project, and then report its outcomes in ways that are optimally useful for stakeholders within the work organisation, is essential to improvement practice. This 'capstone' module gives learners the opportunity to do so, either within the context of their employment (with the support of an employer) or using detailed case study data provided by Advnace Assessments. This module is designed to be comparable with the project elements of the End Point Assessment for the Level 4 Improvement Practitioner apprenticeship.	On completion of this module, learners will be able with minimal supervision to scope, plan, execute, review and report on a self-contained improvement project.

Learning outcomes

LO1: Scope and initiate a change project with an improvement focus

LO2: Define process problems/ improvement opportunities using relevant empirical problem structuring methods

LO3: Select appropriate methods and tools for empirical investigation of an improvement opportunity

LO4: Develop a stakeholder management plan addressing the needs of individuals and groups affected by an improvement project

LO5: Visualise and analyse work processes using appropriate techniques

LO6: Plan an improvement project using relevant project planning and change management techniques

LO7: Analyse process-derived quantitative data for the purpose of understanding process characteristics and improvement opportunities

LO8: Benchmark improvement project outcomes against relevant historical and/or external comparators

LO9: Identify and mitigate execution risks and challenges to an improvement project [safety, ethics, professional values]

LO10: Plan for dissemination of the outcomes of an improvement project to maximise positive impacts within and beyond the work organisation

LO11: Plan for the sustainable transition of improvement project outcomes to routine operations

LO12: Explain the elements of choice and decision in planning and executing a process improvement project

LO13: Reflect on own development as a improvement practitioner

LO14: Explain an improvement project, its outputs and outcomes, in dialogue with affected stakeholders

Assessment			**Rationale**
- 4,000 word written project portfolio - 20 minute presentation - 30 minute professional discussion			The capstone project module provides learners with the opportunity to deploy holistically the skills, tools and techniques learned in the preceding eight modules. Learners supported directly by an employer can complete the module assessment within the context of an improvement project undertaken for their employer; learners not supported by an employer can utilise detailed case materials as their source of information and data. The 4,000 word project is intended to be a highly structured report which can be extensively 'scaffolded' into the delivery of this module and supported stepwise by tutors during guided learning time. Presentation and professional discussion are a valuable opportunity to clarify and question the report and are intended to replicate the experience of reporting on an improvement project within a work context.
RQF credits	**Module learning time**	**Guided learning time**	
40	400 hours	144 hours	