ICTQual AB

Qualification Specification

ICTQual AB Level 3 Certificate in Quality Control Mechanical

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ICTQual AB's

Level 3 Certificate in Quality Control Mechanical

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Qualification Specification about

ICTQual AB Level 3 Certificate in Quality Control Mechanical

About ICTQual AB's

ICTQual AB is a distinguished awarding body based in the United Kingdom, dedicated to fostering excellence in education, training, and skills development. Committed to global standards, ICTQual AB's provides internationally recognized qualifications that empower individuals and organizations to thrive in an increasingly competitive world. Their offerings span diverse industries, including technical fields, health and safety, management, and more, ensuring relevance and adaptability to modern workforce needs.

ICTQual AB's delivers high-quality educational solutions through a network of Approved Training Centres worldwide. Their robust standards and innovative teaching methodologies equip learners with practical knowledge and skills for personal and professional growth. With a mission to inspire lifelong learning and drive positive change, ICTQual AB's continuously evolves its programs to stay ahead of industry trends and technological advancements.

Course Overview

The Level 3 Certificate in Quality Control – Mechanical is designed to build a solid foundation in the principles and practices of mechanical quality control across a range of industrial and engineering environments. This programme develops the core skills required to ensure mechanical systems and components meet defined quality standards, technical specifications, and compliance requirements. The learning pathway is aligned with recognised standards and performance objectives, with a strong focus on practical implementation of quality tools, inspection techniques, measurement accuracy, and defect prevention methods. Learners will gain competence in using mechanical inspection tools, interpreting technical drawings and specifications, documenting inspection results, and understanding tolerance and calibration requirements. Emphasis is placed on identifying non-conformities, applying corrective actions, and supporting continual improvement within mechanical manufacturing or maintenance settings. The course also introduces learners to quality documentation practices and internal compliance assessment methods relevant to the mechanical industry.

Course Aim

The aim of this course is to develop competent individuals capable of applying mechanical quality control standards in real-world operational settings. It seeks to enhance the technical capability and critical thinking of participants by enabling them to:

- ✓ Interpret mechanical specifications and engineering tolerances
- ✓ Use inspection tools and testing procedures accurately
- ✓ Detect and document non-conformities and deviations
- ✓ Implement quality assurance procedures effectively
- ✓ Contribute to defect reduction and continuous improvement efforts
- ✓ Support compliance with internal and external quality requirements

For Whom This Course is For

This course is ideal for individuals who are either new to the field of mechanical quality control or currently employed in a mechanical or engineering-related role and seeking to enhance their quality assurance skills. It is particularly suitable for:

- Quality control inspectors and technicians
- Mechanical maintenance personnel
- Production line workers involved in mechanical inspection
- Engineering assistants and technical staff
- Individuals preparing for supervisory roles in mechanical quality environments

Whether working in manufacturing, maintenance, fabrication, or service environments, participants will benefit from practical insights and skills that support high-quality mechanical outcomes in accordance with established industry standards and operational objectives.

Certification Framework

Qualification title	**ICTQual AB Level 3 Certificate in Quality Control Mechanical**
Course ID	QC0011
Grading Type	Pass / Fail
Competency Evaluation	Coursework / Assignments / Verifiable Experience
Assessment	The assessment and verification process for ICTQual AB's qualifications involves two key stages: **Internal Assessment and Verification:** ✓ Conducted by the staff at the Approved Training Centre (ATC) to ensure learners meet the required standards through continuous assessments. ✓ Internal Quality Assurance (IQA) is carried out by the centre's IQA staff to validate the assessment process. **External Quality Assurance:** ✓ Managed by ICTQual AB's verifiers, who periodically review the centre's assessment and IQA processes. Verifies that assessments are conducted to the required standards and ensures consistency across centres

Entry Requirements

To enroll in the ICTQual AB Level 3 Certificate in Quality Control Mechanical, learners must meet the following requirements:

- **Minimum Age Requirement:**
  - Learners must be at least 18 years old at the time of enrolment.
- **Educational Background:**
  - A minimum of secondary school education or equivalent is required. A strong foundation in mathematics and science subjects is recommended to support technical understanding.
- **Industry Experience (Preferred but not Mandatory):**
  - While prior experience in a mechanical, manufacturing, or engineering environment is advantageous, it is not mandatory. The course is also suitable for those seeking to enter the quality control field for the first time.

These entry requirements ensure that learners have the foundational skills and maturity necessary to succeed in the programme and apply their knowledge in professional mechanical quality control settings.

Qualification Structure

This qualification comprises 3 mandatory units. Candidates must successfully complete all mandatory units to achieve the qualification.

Mandatory Units	
Unit Ref#	**Unit Title**
QC0011 -01	Fundamentals of Mechanical Quality Control and Inspection
QC0011 -02	Mechanical Measurement Tools and Techniques
QC0011 -03	Introduction to Mechanical Codes, Standards, and Compliance

Centre Requirements

To ensure quality training delivery, centres must adhere to the following standards:

1. Centre Approval

- ✓ Centres must be formally approved by ICTQual AB's before delivering this qualification.
- ✓ Approval involves a review of facilities, policies, and staff qualifications.

2. Qualified Staff

- ✓ **Tutors:** Must possess relevant technical qualifications in mechanical engineering or quality control at Level 4 or above.
- ✓ **Assessors:** Must hold a recognized assessor qualification (e.g., CAVA, AVRA) or equivalent)
- ✓ **Internal Quality Assurers (IQAs):** Must hold a recognized IQA qualification (e.g. Level 4 Award in the IQA and Level 4 Certificate in Leading the IQA) and experience to oversee assessment standards.

3. Learning Facilities

Centre must offer:

- ✓ Private study areas and internet-enabled workspaces (for blended or physical delivery)
- ✓ Academic and pastoral support for learners
- ✓ Administrative support must be available to manage enrolment, tracking, and learner queries efficiently

4. Health and Safety Compliance

- ✓ All training facilities must comply with health and safety regulations.
- ✓ Centres must conduct regular risk assessments for practical activities.

5. Learning Resources

- ✓ **Course Materials:** Approved textbooks, study guides, and digital content must align with the qualification standards.

- ✓ **Assessment Tools:** Templates and guidelines must be provided to ensure standardized evaluation processes.
- ✓ **E-Learning Support:** Centres offering online or blended learning must implement an effective Learning Management System (LMS).

6. Assessment and Quality Assurance

- ✓ Centres must ensure assessments meet ICTQual AB's competency standards.
- ✓ Internal quality assurance (IQA) must be conducted to maintain consistency.
- ✓ External verifiers from ICTQual AB's will review assessment and training practices.

7. Learning Support

- ✓ **Qualification Guidance:** Support for coursework and assignments.
- ✓ **Career Pathway Assistance:** Information on progression opportunities in sustainability and energy sectors.
- ✓ **Accessibility Support:** Accommodations for learners with disabilities or language barriers.

8. Policies and Compliance

Centres must uphold the following policies in accordance with ICTQual AB's standards:

- ✓ Equality, Diversity, and Inclusion Policy.
- ✓ Health and Safety Policy.
- ✓ Safeguarding and Learner Protection Policy.
- ✓ Complaints and Appeals Procedure.
- ✓ Data Protection and Confidentiality Policy.

9. Reporting Requirements

- Centres must provide ICTQual AB's with regular reports on learner registrations, progress, and certification outcomes.
- Assessment records must be maintained for external auditing and quality assurance purposes.

Support for Candidates

Centres should ensure that materials developed to support candidates:

- ✓ Facilitate tracking of achievements as candidate's progress through the learning outcomes and assessment criteria.
- ✓ Include information on how and where ICTQual AB's policies and procedures can be accessed.
- ✓ Provide mechanisms for Internal and External Quality Assurance staff to verify and authenticate evidence effectively.

This approach ensures transparency, supports candidates' learning journeys, and upholds quality assurance standards.

Assessment

This qualification is competence-based, requiring candidates to demonstrate proficiency as defined in the qualification units. The assessment evaluates the candidate's skills, knowledge, and understanding against the set standards. Key details include:

1. **Assessment Process:**

   - ✓ Must be conducted by an experienced and qualified assessor.
   - ✓ Candidates compile a portfolio of evidence that satisfies all learning outcomes and assessment criteria for each unit.

2. **Types of Evidence:**

   - ✓ Observation reports by the assessor.
   - ✓ Assignments, projects, or reports.
   - ✓ Professional discussions.
   - ✓ Witness testimonies.
   - ✓ Candidate-produced work.
   - ✓ Worksheets.
   - ✓ Records of oral and written questioning.
   - ✓ Recognition of Prior Learning (RPL).

3. **Learning Outcomes and Assessment Criteria:**

   - ✓ **Learning Outcomes:** Define what candidates should know, understand, or accomplish upon completing the unit.
   - ✓ **Assessment Criteria:** Detail the standards candidates must meet to demonstrate that the learning outcomes have been achieved.

This framework ensures rigorous and consistent evaluation of candidates' competence in line with the qualification's objectives.

Unit Descriptors

QC0011-01- Fundamentals of Mechanical Quality Control and Inspection

This unit introduces learners to the basic principles of quality control and inspection in mechanical environments. It explains why quality control is important and how it helps prevent faults, improve safety, and meet customer requirements. Learners will explore the role of quality control in manufacturing and maintenance, and the responsibilities of quality control staff. The unit covers how to identify defects, monitor processes, and check finished products against given requirements. It explains the difference between quality control and quality assurance and introduces basic quality terms like non-conformity, inspection, and corrective action. Learners will also gain an understanding of quality planning, record-keeping, and how to follow instructions in mechanical work settings.

Learning Outcome:	Assessment Criteria:
1. Understand the basic principles and processes of mechanical quality control.	1.1 Explain the fundamental purpose and objectives of mechanical quality control. 1.2 Explain the difference between quality assurance and quality control using practical examples. 1.3 Describe the key stages of a quality control process, from initial design review to final inspection. 1.4 Describe the possible outcomes of inadequate quality control on product safety and commercial viability.
2. Identify key components and stages in the mechanical inspection process.	2.1 Identify and classify the different types of inspection methods, such as visual, dimensional, and non-destructive testing (NDT). 2.2 Describe the function of essential documentation used throughout the inspection process, including engineering drawings and inspection reports. 2.3 Explain the importance of pre-inspection checks and proper handling of components. 2.4 Explain the importance of a final inspection report in certifying a component's conformity. 2.5 Plan a logical sequence of inspection stages for a given mechanical component based on its complexity.
3. Recognise the role of quality control in maintaining mechanical system integrity.	3.1 Explain how consistent quality control contributes to the overall reliability and longevity of a mechanical system. 3.2 Discuss the relationship between the material properties of a component and the types of quality checks required. 3.3 Explain how proactive quality control measures can reduce long-term maintenance costs and prevent catastrophic failures.

	3.4 Recognise the legal and ethical responsibilities associated with maintaining mechanical integrity through quality control.
4. Apply inspection procedures to detect and report mechanical defects.	4.1 Follow a standard operating procedure (SOP) to perform a visual inspection on a specified component. 4.2 Identify and categorize common mechanical defects, such as corrosion, cracks, or deformation, based on visual evidence. 4.3 Accurately complete an inspection report, documenting all findings in a clear and structured manner. 4.4 Propose potential rework or disposition actions for a non-conforming component. 4.5 Use extra evidence, such as photographs or sketches, to support a defect report.

QC0011-02- Mechanical Measurement Tools and Techniques

This unit focuses on the correct use of common mechanical measuring tools and inspection methods. Learners will become familiar with tools such as vernier calipers, micrometers, dial indicators, height gauges, and surface plates. They will learn how to handle, read, and store these tools properly to ensure accurate measurements. The unit also explains how to check dimensions, tolerances, and surface finishes on mechanical parts. Learners will practise using both manual and digital instruments and learn about the importance of calibration and zeroing. They will be taught how to take measurements safely and how to record and report the results clearly. By the end of the unit, learners will understand how accurate measurement supports good quality control.

Learning Outcome:	Assessment Criteria:
1. Develop proficiency in using mechanical measurement tools such as calipers, micrometers, and dial indicators.	1.1 Select the correct measurement tool for a given dimensional check and give reasons for the choice based on required precision. 1.2 Demonstrate the correct and safe procedure for calibrating and using a digital or analog micrometer. 1.3 Perform accurate internal and external measurements using a vernier caliper. 1.4 Measure runout or flatness of a component using a dial indicator with appropriate setup.
2. Understand measurement principles including accuracy, precision, and tolerance.	2.1 Explain the difference between the concepts of accuracy, precision, and resolution in a measurement context. 2.2 Explain the role of tolerance and its relationship to the function and interchange ability of components. 2.3 Calculate the upper and lower tolerance limits for a given dimension from an engineering drawing. 2.4 Identify and explain potential sources of measurement error and the methods to minimize them. 2.5 Understand a set of measurement data to see the overall repeatability and reproducibility of a measurement process.
3. Perform dimensional checks on mechanical components using appropriate techniques.	3.1 Carry out a complete dimensional inspection of a component using a provided engineering drawing as a reference. 3.2 Perform depth measurements on blind and through-holes using a depth micrometer or caliper. 3.3 Verify the concentricity and perpendicularity of a component using appropriate measurement setups. 3.4 Record all measurement data systematically and

	correctly, including units and tolerance ranges.
4. Interpret measurement data to assess mechanical conformity.	4.1 Compare a set of measured values against the specified tolerance limits to decide a component's conformance status. 4.2 Understand statistical data and control charts to find trends and possible process issues. 4.3 Make a reasoned decision on whether a component should be accepted, rejected, or re-inspected based on the measurement data. 4.4 Generate a summary report of inspection findings, including clear recommendations for non-conforming parts. 4.5 Explain the effects of a non-conforming part on the assembly and function of a larger mechanical system.

QC0011-03- Introduction to Mechanical Codes, Standards, and Compliance

This unit introduces learners to the codes, standards, and regulations that guide mechanical quality control work. It explains why standards exist and how they help ensure safety, reliability, and consistency in mechanical systems and components. Learners will explore common mechanical standards and understand how to apply them in the workplace. The unit covers topics such as engineering drawings, specifications, tolerance limits, and compliance checks. It also teaches learners about documentation and reporting methods used to prove that work meets required standards. Learners will learn how to identify non-compliance, raise concerns, and take part in maintaining a safe and approved working environment.

Learning Outcome:	Assessment Criteria:
1. **Gain knowledge of internationally recognised mechanical engineering standards.**	1.1 Identify and name at least four major international standards organizations and describe their areas of focus. 1.2 Explain the purpose and structure of a specific internationally recognized mechanical engineering standard. 1.3 Find and explain key information within a standard document, such as material specifications or testing procedures. 1.4 Explain the difference between a standard, a code, and a technical specification.
2. **Understand the importance of compliance with mechanical codes in quality assurance.**	2.1 Explain the role of codes and standards in ensuring product safety and public well-being. 2.2 Discuss the legal and financial problems of failing to comply with mandatory mechanical codes. 2.3 Describe how following standards promotes interoperability and efficiency in manufacturing. 2.4 Explain how following codes impacts a company's reputation and market access. 2.5 Review a case study of a mechanical failure and trace it back to a specific code non-compliance issue.
3. **Identify applicable codes and standards relevant to various mechanical systems.**	3.1 Select the appropriate standards and codes for a mechanical system, considering its function, operating environment, and materials. 3.2 Locate the specific section or clause within a code that dictates a particular design or manufacturing requirement. 3.3 Identify the necessary certification and documentation required for a component to show compliance. 3.4 Explain the process for checking that a

supplier's components conform to a specified standard.

4. **Apply regulatory and compliance requirements during quality control inspections.**

4.1 Create a quality control checklist that uses relevant codes and standards for a given inspection task.
4.2 Perform a physical inspection to check that a component meets a specific regulatory requirement.
4.3 Complete all necessary documentation and sign-offs to certify a component's compliance status.
4.4 Report any deviations from compliance requirements, detailing the non-conformance and its potential impact.
4.5 Propose a corrective action plan to fix a compliance issue, ensuring all steps are documented and auditable.

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