ICTQual AB

Qualification Specification

ICTQual AB Level 5 Diploma in Quality Control Electrical

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ICTQual AB's

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Contents

Qualification Specification about

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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 5 Diploma in Quality Control – Electrical provides advanced understanding of Electrical quality control systems and principles, equipping learners with the analytical, technical, and procedural knowledge required for ensuring consistent product quality within engineering environments. This programme is structured around internationally recognised quality assurance principles, with a strong emphasis on inspection procedures, testing protocols, compliance management, documentation, and continuous improvement. Learners will develop expertise in Electrical measurement, quality auditing, risk identification, statistical process control, and defect prevention strategies, all tailored to meet the needs of contemporary industrial practices. This qualification aligns with professional expectations of quality control engineers, supervisors, and compliance officers in the Electrical sector, emphasising both theoretical understanding and practical application through real-world quality standards and operating procedures.

Course Aim:

The aim of this diploma is to prepare learners with specialised knowledge and operational proficiency in Electrical quality control. It enables participants to monitor, evaluate, and improve product and process quality by applying advanced inspection techniques, understanding regulatory frameworks, managing technical documentation, and executing quality control strategies in line with industry standards. The course supports professional development for those seeking supervisory or leadership roles in Electrical quality environments.

Target Audience:

This qualification is designed for:

- Quality control inspectors and technicians seeking advanced qualifications
- Electrical engineering professionals aiming to expand their quality assurance skills
- Supervisors and team leaders responsible for quality improvement initiatives
- Individuals transitioning into Electrical quality control roles from related technical fields
- Learners aspiring to gain a deeper understanding of inspection, compliance, and risk mitigation practices within Electrical engineering industries

This course is particularly beneficial for those intending to work in production, fabrication, manufacturing, construction, or maintenance environments where Electrical quality control is critical.

Certification Framework

Qualification title	**ICTQual AB Level 5 Diploma in Quality Control Electrical**
Course ID	QC0010
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 5 Diploma in Quality Control Electrical, learners must meet the following requirements:

- **Minimum Age**
  - Learners must be at least 19 years of age at the time of enrolment
- **Educational Background**
  - A recognised Level 4 qualification in electrical engineering, quality control, or a closely related technical discipline
  - Strong foundation in mathematics, electrical theory, and technical documentation
- **Relevant Experience**
  - A minimum of 2 years of practical experience in electrical installation, inspection, maintenance, or quality assurance roles
  - Familiarity with industry standards, safety regulations, and quality control processes is highly recommended

These entry requirements ensure that learners possess the academic background and field experience necessary to benefit from the advanced knowledge and leadership skills delivered in this diploma programme.

Qualification Structure

This qualification comprises 10 mandatory units. Candidates must successfully complete all mandatory units to achieve the qualification.

Mandatory Units	
Unit Ref#	**Unit Title**
QC0010-01	Advanced Principles of Electrical Quality Assurance
QC0010-02	Risk Assessment and Hazard Management in Electrical Systems
QC0010-03	Complex Electrical Testing and Fault Diagnosis Techniques
QC0010-04	Compliance with International Electrical Codes and Standards
QC0010-05	Quality Control in Power Distribution and Industrial Systems
QC0010-06	Documentation, Auditing, and Regulatory Reporting Procedures
QC0010-07	Supervisory Skills and Leadership in Quality Control Environments
QC0010-08	Quality Planning and Implementation in Large-Scale Projects
QC0010-09	Root Cause Analysis and Corrective Action Strategies
QC0010-10	Integration of Quality Control with Health and Safety Systems

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 hold a recognised teaching or assessing qualification (e.g., Level 5 or higher in Teaching/Assessing) and have relevant industry experience in electrical quality control.
- ✓ **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

QC0010-01- Advanced Principles of Electrical Quality Assurance

This unit covers the advanced principles that support effective quality assurance in electrical systems. Learners will explore how to plan, manage, and evaluate quality assurance processes in various environments, including high-risk and high-voltage systems. Topics include performance standards, electrical tolerances, process control, and defect prevention strategies. Emphasis is placed on applying structured quality assurance frameworks to ensure the safe, consistent, and reliable operation of electrical installations and components.

Learning Outcome:	Assessment Criteria:
1. Analyse and apply advanced concepts of electrical quality assurance.	1.1 Interpret advanced quality assurance methodologies such as Six Sigma or TQM within electrical contexts. 1.2 Apply process capability analysis to assess performance stability. 1.3 Correlate fault trends with system performance to guide preventive actions. 1.4 Compare internal and external quality assurance practices for electrical installations. 1.5 Integrate advanced quality planning tools into inspection processes. 1.6 Assess the suitability of statistical quality control in different electrical environments.
2. Develop strategies to improve quality across electrical projects.	2.1 Design quality improvement plans addressing common installation deficiencies. 2.2 Incorporate stakeholder input into strategy development for quality enhancement. 2.3 Establish monitoring processes to track quality improvement progress. 2.4 Integrate continuous improvement cycles (e.g., PDCA) into inspection workflows. 2.5 Justify resource allocation for strategic quality initiatives. 2.6 Evaluate the scalability of improvement strategies for different project scopes. 2.7 Benchmark strategies against industry best practices.
3. Evaluate quality control models for effectiveness in electrical systems.	3.1 Compare the use of ISO 9001, Kaizen, and Lean models in electrical environments. 3.2 Critically assess the impact of chosen models on safety, performance, and cost. 3.3 Review implementation outcomes of quality models through case study analysis.

	3.4 Identify limitations of each model in high-risk electrical systems. 3.5 Recommend adjustments to existing models for improved effectiveness. 3.6 Align model evaluations with customer and regulatory expectations.
4. Implement quality frameworks that align with organisational objectives.	4.1 Translate organisational quality goals into measurable electrical QC activities. 4.2 Integrate internal policies with external quality requirements. 4.3 Develop quality documentation aligned with framework implementation. 4.4 Ensure top-down support for framework execution across departments. 4.5 Validate implementation effectiveness through performance indicators. 4.6 Resolve conflicts between operational needs and quality compliance.
5. Identify key performance indicators related to electrical quality.	5.1 Select KPIs relevant to electrical reliability, fault rates, and inspection closure. 5.2 Set target values and thresholds for identified KPIs. 5.3 Use historical data to inform performance baselines. 5.4 Monitor trends in KPI performance across different teams or units. 5.5 Present KPI outcomes in a way that supports strategic decision-making. 5.6 Adjust KPIs in response to changes in standards or system requirements.

QC0010-02- Risk Assessment and Hazard Management in Electrical Systems

This unit helps learners understand how to assess and control risks in electrical systems. Learners will study how to identify hazards, evaluate the level of risk, and implement control measures to reduce the chances of harm. The unit includes methods for managing risks in working environments such as substations, switchgear areas, and confined spaces. It focuses on legal duties, safety standards, and practical skills for reducing electrical risk to people, property, and systems.

Learning Outcome:	Assessment Criteria:
1. Conduct comprehensive risk assessments for electrical operations.	1.1 Identify high-risk electrical activities using structured tools like HAZOP or JSA. 1.2 Evaluate likelihood and severity of risk in live testing and installation. 1.3 Assess compliance with regulatory frameworks in risk identification. 1.4 Consider the impact of environmental and human factors in risk evaluations. 1.5 Document assessment outcomes in line with legal requirements. 1.6 Justify the need for reassessment when system conditions change.
2. Identify electrical hazards and implement control measures.	2.1 Recognise potential arc flash, shock, overload, and fire hazards. 2.2 Classify hazards according to source and system configuration. 2.3 Select and apply appropriate engineering and administrative controls. 2.4 Evaluate the effectiveness of PPE and isolation procedures. 2.5 Establish emergency response actions for detected hazards. 2.6 Verify hazard control implementation through inspection and testing.
3. Apply risk mitigation techniques based on industry best practices.	3.1 Incorporate IEC and NFPA guidelines into risk mitigation activities. 3.2 Use hierarchy of controls to prioritise preventive measures. 3.3 Implement electrical lockout/tagout (LOTO) procedures effectively. 3.4 Validate grounding, bonding, and protective device settings. 3.5 Review and update mitigation plans following near-

	miss reports. 3.6 Justify control methods through quantitative and qualitative assessments.
4. Integrate risk management into quality control procedures.	4.1 Embed risk reviews within routine inspection schedules. 4.2 Link control plan development to risk assessment outcomes. 4.3 Communicate risk-based inspection priorities to the QC team. 4.4 Develop documentation formats that combine quality and risk data. 4.5 Ensure continual improvement of risk-informed QC practices. 4.6 Audit the effectiveness of risk integration annually or as required.
5. Prepare detailed risk reports for internal and regulatory use.	5.1 Structure reports to reflect hazard identification, assessment, and control. 5.2 Use accurate terminology, codes, and reference standards in reports. 5.3 Include visual aids like risk matrices or system diagrams. 5.4 Maintain objectivity and evidence-based conclusions. 5.5 Comply with legal documentation retention and reporting standards. 5.6 Tailor reports to meet the requirements of clients, regulators, or internal review. 5.7 Incorporate feedback mechanisms for future report enhancements.

QC0010-03- Complex Electrical Testing and Fault Diagnosis Techniques

In this unit, learners will develop the knowledge and skills required to carry out detailed testing and fault-finding procedures. It covers the use of advanced testing equipment and techniques, including insulation resistance, earth fault loop impedance, and thermal imaging. Learners will also learn how to identify hidden faults, interpret data from tests, and provide accurate reports. The unit supports the ability to detect, diagnose, and resolve faults in both low and high-voltage electrical systems.

Learning Outcome:	Assessment Criteria:
1. **Perform advanced testing on high-voltage and complex electrical systems.**	1.1 Apply procedures for testing HV switchgear, transformers, and feeders. 1.2 Select appropriate instruments for testing under varying loads and voltages. 1.3 Perform insulation coordination and withstand tests. 1.4 Ensure safety compliance during live testing using earthing and barriers. 1.5 Verify test setups against technical specifications. 1.6 Document test procedures for traceability and audit readiness. 1.7 Handle test anomalies and restart sequences as per protocols.
2. **Diagnose faults using analytical and diagnostic tools.**	2.1 Utilise power analysers, oscilloscopes, and harmonics testers effectively. 2.2 Interpret thermal imaging and acoustic data for hidden fault identification. 2.3 Use diagnostic software for real-time fault analysis. 2.4 Determine cause-effect relationships using electrical schematics. 2.5 Perform condition-based monitoring for predictive maintenance. 2.6 Record fault diagnosis sequences and decision pathways. 2.7 Validate findings with follow-up testing or third-party verification.
3. **Interpret complex test results to identify underlying issues.**	3.1 Analyse deviations in impedance, voltage drop, or time delay readings. 3.2 Use trending data to detect deterioration in system components. 3.3 Isolate contributing factors in multi-circuit

	faults. 3.4 Relate test outcomes to system load behaviour and environmental factors. 3.5 Cross-verify findings using complementary test methods. 3.6 Recommend corrective measures supported by test evidence.
4. Apply troubleshooting methods to restore operational efficiency.	4.1 Develop logical fault isolation plans based on system architecture. 4.2 Execute temporary and permanent corrective actions effectively. 4.3 Minimise system downtime using efficient repair sequencing. 4.4 Communicate restoration procedures clearly to site teams. 4.5 Conduct follow-up checks to confirm resolution of faults. 4.6 Maintain records of troubleshooting decisions and outcomes.
5. Evaluate the effectiveness of testing strategies in fault prevention.	5.1 Compare test result trends before and after corrective actions. 5.2 Assess false positive or false negative occurrences in test methods. 5.3 Recommend changes to test frequency or scope based on system performance. 5.4 Link testing strategies to failure rate reduction metrics. 5.5 Provide strategic feedback on test protocols to senior quality teams. 5.6 Incorporate lessons learned into future test planning activities.

QC0010-04- Compliance with International Electrical Codes and Standards

This unit introduces learners to the key international and national codes that guide electrical safety and quality. Learners will examine standards such as IEC, BS, and other regionally accepted guidelines. The unit teaches how to apply these standards to inspection, testing, installation, and certification processes. It also includes understanding updates to legislation and aligning practices with evolving global compliance requirements in electrical work.

Learning Outcome:	Assessment Criteria:
1. Interpret and apply global electrical standards and codes.	1.1 Identify applicable codes for different installations and voltage levels. 1.2 Cross-reference technical procedures with code requirements. 1.3 Implement standards such as IEC 60364, BS 7671, and ISO 45001. 1.4 Adapt interpretations to site-specific and client-specific needs. 1.5 Provide rationale for compliance choices during inspections. 1.6 Train peers on critical updates to global electrical codes.
2. Ensure all installations meet legal and regulatory requirements.	2.1 Verify system designs against statutory design and installation rules. 2.2 Confirm protective devices meet rated capacities and breaking points. 2.3 Inspect earthing, bonding, and clearance provisions. 2.4 Document test certifications in accordance with compliance laws. 2.5 Correct or report deviations from regulatory provisions. 2.6 Prepare for authority inspections by ensuring full documentation readiness. 2.7 Participate in internal compliance audits.

3. Maintain compliance across multi-jurisdictional electrical projects.	3.1 Understand jurisdictional differences in voltage classifications and protection schemes. 3.2 Align documentation to satisfy regional authority expectations. 3.3 Communicate standard requirements to diverse site teams. 3.4 Resolve conflicts between overlapping codes or authorities. 3.5 Track code equivalency for imported equipment or systems. 3.6 Provide evidence of compliance in different legal territories.
4. Monitor changes in standards and update procedures accordingly.	4.1 Subscribe to standards publications and regulatory updates. 4.2 Review and update internal procedures within set timeframes. 4.3 Reassess ongoing installations based on revised code elements. 4.4 Communicate changes to site and quality personnel. 4.5 Provide training or guidance on new procedures. 4.6 Log change implementation for audit purposes.
5. Support audits and inspections with evidence of compliance.	5.1 Prepare documentation portfolios aligned with audit scope. 5.2 Present certificates, test reports, and design approvals clearly. 5.3 Assist auditors with technical interpretation of installations. 5.4 Address non-conformities with root cause explanations. 5.5 Ensure all audit findings are tracked to resolution. 5.6 Contribute to audit readiness plans for ongoing compliance assurance.

QC0010-05- Quality Control in Power Distribution and Industrial Systems

This unit focuses on quality control procedures used in power distribution systems and industrial environments. Learners will gain knowledge of system layouts, control panels, transformers, and industrial switchgear. The unit also explores performance testing, fault prevention, and monitoring techniques in environments where continuous power quality is essential. Learners will be trained to detect defects, ensure equipment reliability, and support the long-term integrity of large-scale systems.

Learning Outcome:	Assessment Criteria:
1. Assess quality parameters in large-scale power and industrial systems.	1.1 Identify parameters such as power factor, load balance, and THD. 1.2 Measure system stability under normal and peak loads. 1.3 Compare actual performance data to design values. 1.4 Monitor transformer efficiency and harmonic distortion. 1.5 Identify signs of aging or insulation breakdown. 1.6 Use SCADA or BMS data for quality performance assessment.
2. Monitor system performance and identify areas for improvement.	2.1 Track energy losses and inefficiencies using smart meters. 2.2 Identify bottlenecks in control systems or distribution paths. 2.3 Analyse voltage sags, flickers, and transients. 2.4 Recommend system reconfigurations to enhance reliability. 2.5 Evaluate the effectiveness of power conditioning equipment. 2.6 Develop dashboards or KPIs for ongoing system monitoring. 2.7 Implement trend analysis for predictive improvements.

3. Apply inspection techniques suited for industrial environments.	3.1 Conduct insulation resistance and leakage current testing. 3.2 Apply non-destructive techniques like ultrasound or vibration monitoring. 3.3 Verify relay coordination and panel wiring accuracy. 3.4 Implement permit-to-work and lockout procedures during inspections. 3.5 Follow confined space entry requirements for plant inspections. 3.6 Adjust inspection frequencies based on equipment usage.
4. Ensure installation and maintenance practices meet industry benchmarks.	4.1 Compare contractor performance against service-level quality benchmarks. 4.2 Audit cable routing, termination, and labelling practices. 4.3 Validate maintenance logs and schedules for accuracy. 4.4 Confirm spares management meets system criticality. 4.5 Recommend training or supervision improvements where gaps exist. 4.6 Benchmark practices against ISO 9001 or other relevant standards.
5. Evaluate supplier and contractor compliance with quality standards.	5.1 Conduct third-party audits on supplier processes. 5.2 Review materials certification and delivery compliance. 5.3 Monitor subcontractor work against contractual quality clauses. 5.4 Implement non-conformance reporting for external providers. 5.5 Assess suppliers based on delivery performance and defect rates. 5.6 Develop supplier improvement plans when standards are not met.

QC0010-06- Documentation, Auditing, and Regulatory Reporting Procedures

This unit provides a detailed look at the importance of proper documentation and reporting in electrical quality control. Learners will study how to prepare inspection reports, audit records, testing certificates, and non-conformance documentation. They will also learn about internal and external audit procedures, traceability, and how to provide evidence during inspections. Emphasis is placed on maintaining clear and accurate records that meet regulatory and quality assurance requirements.

Learning Outcome:	Assessment Criteria:
1. **Develop and manage accurate quality documentation systems.**	1.1 Design documentation templates that support traceability, verification, and standardisation. 1.2 Establish document control protocols for versioning, approval, and archiving. 1.3 Integrate documentation requirements into daily inspection and testing workflows. 1.4 Audit existing documentation systems for completeness and compliance. 1.5 Train personnel on correct and consistent document use. 1.6 Implement electronic quality management systems (eQMS) to manage records.
2. **Prepare reports that meet regulatory and audit requirements.**	2.1 Produce structured reports aligned with regulatory formats and language. 2.2 Incorporate test data, visual evidence, and compliance references in reports. 2.3 Validate report accuracy through cross-checking against inspection records. 2.4 Adjust reporting formats based on the type of audit or regulatory body. 2.5 Use risk-based reporting to prioritise critical issues. 2.6 Ensure timely submission of reports in accordance with legal deadlines. 2.7 Justify report findings using technical reasoning and traceable evidence.
3. **Conduct internal and external audits of electrical quality processes.**	3.1 Plan audit scopes, objectives, and schedules based on compliance risk. 3.2 Use standardised audit checklists and evidence collection tools. 3.3 Interview staff and observe processes to assess conformance.

	3.4 Identify audit non-conformities, categorise severity, and support findings with evidence. 3.5 Coordinate with external auditors during formal inspections. 3.6 Ensure audit actions are documented and linked to specific procedures.
4. Implement corrective actions based on audit findings.	4.1 Analyse root causes behind audit non-conformities. 4.2 Develop corrective action plans with measurable outcomes. 4.3 Assign responsibilities and deadlines for implementation. 4.4 Monitor and verify the closure of audit findings. 4.5 Review the effectiveness of completed corrective actions. 4.6 Maintain records of follow-up audits and improvements over time.
5. Ensure transparency and traceability through structured reporting.	5.1 Maintain a clear audit trail from inspection findings to report submission. 5.2 Link individual documents to quality objectives and compliance clauses. 5.3 Ensure real-time access to documentation for internal and external reviewers. 5.4 Demonstrate full lifecycle traceability for electrical components and tests. 5.5 Develop summary dashboards to improve transparency across departments. 5.6 Align documentation traceability with supply chain requirements.

QC0010-07- Supervisory Skills and Leadership in Quality Control Environments

This unit is designed to build supervisory and leadership skills needed in electrical quality control roles. It includes techniques for leading inspection teams, communicating with contractors, managing performance, and solving problems. Learners will explore leadership styles, decision-making, time management, and conflict resolution. The unit prepares learners to take responsibility for the quality and safety of electrical work on-site while guiding others to meet the required standards.

Learning Outcome:	Assessment Criteria:
1. **Lead quality control teams with efficiency and professionalism.**	1.1 Set clear expectations and communicate quality goals effectively. 1.2 Demonstrate decision-making under pressure and during inspections. 1.3 Lead by example in compliance with technical and safety standards. 1.4 Evaluate team performance using objective quality metrics. 1.5 Balance workloads and priorities among team members. 1.6 Provide leadership during emergency or non-conformance events. 1.7 Adapt leadership style based on team dynamics and project needs.
2. **Manage workflows and delegate tasks within quality departments.**	2.1 Set clear expectations and communicate quality goals effectively. 2.2 Demonstrate decision-making under pressure and during inspections. 2.3 Lead by example in compliance with technical and safety standards. 2.4 Evaluate team performance using objective quality metrics. 2.5 Balance workloads and priorities among team members. 2.6 Provide leadership during emergency or non-conformance events. 2.7 Adapt leadership style based on team dynamics and project needs.

3. Motivate teams to achieve quality targets and compliance goals.	3.1 Use performance data to recognise and reward quality improvements. 3.2 Encourage team ownership of inspection outcomes. 3.3 Set realistic and measurable performance targets. 3.4 Promote a culture of shared accountability and mutual respect. 3.5 Provide regular feedback that is constructive and specific. 3.6 Align team efforts with broader quality objectives.
4. Resolve conflicts and improve team communication.	4.1 Identify root causes of interpersonal or task-related conflicts. 4.2 Facilitate open discussion in a structured and respectful manner. 4.3 Apply negotiation and compromise techniques in resolving disputes. 4.4 Set communication protocols for shift handovers and reporting. 4.5 Prevent recurring misunderstandings through clear written instructions. 4.6 Monitor the impact of improved communication on productivity.
5. Support continuous professional development in quality control staff.	5.1 Identify individual training needs based on audit or performance outcomes. 5.2 Facilitate access to formal courses and on-site mentoring. 5.3 Encourage cross-training to improve workforce flexibility. 5.4 Track staff development through training logs and feedback sessions. 5.5 Evaluate the effectiveness of upskilling on quality KPIs. 5.6 Create personal development plans aligned with organisational needs. 5.7 Promote career progression opportunities within the quality function.

QC0010-08- Quality Planning and Implementation in Large-Scale Projects

This unit teaches learners how to plan and implement quality control measures across large and complex electrical systems. It covers quality objectives, process mapping, resource planning, and system-wide inspections. Learners will study how to manage timelines, assess quality risks, and implement improvement strategies across multiple teams or sites. The unit develops the learner's ability to ensure consistent quality performance throughout all stages of major installations.

Learning Outcome:	Assessment Criteria:
1. Design and implement quality management plans for complex projects.	1.1 Develop quality plans that cover inspection, testing, documentation, and acceptance. 1.2 Incorporate stakeholder input and technical requirements into the plan. 1.3 Align quality activities with timelines and budget constraints. 1.4 Set project-specific quality benchmarks and tolerances. 1.5 Ensure quality control points are integrated with critical path items. 1.6 Implement escalation procedures for quality deviations. 1.7 Review and revise plans based on changing site conditions.
2. Coordinate with stakeholders to align quality objectives.	2.1 Communicate quality expectations to contractors and suppliers. 2.2 Ensure stakeholder roles are clearly defined in quality responsibilities. 2.3 Facilitate quality briefings and pre-start meetings. 2.4 Resolve conflicts between technical requirements and stakeholder preferences. 2.5 Document agreed-upon quality criteria in contracts and work packages. 2.6 Gather feedback to improve stakeholder engagement in quality initiatives.

3. Monitor quality performance throughout the project lifecycle.	3.1 Establish KPIs to measure quality at each project stage. 3.2 Collect and analyse inspection data to detect trends. 3.3 Coordinate mid-project reviews to address emerging issues. 3.4 Evaluate subcontractor performance through site observations. 3.5 Track the number and type of non-conformities. 3.6 Report performance findings to senior management and revise actions accordingly.
4. Manage resources effectively to meet project quality standards.	4.1 Plan resource allocation based on inspection workloads. 4.2 Ensure availability of calibrated tools and approved materials. 4.3 Deploy quality personnel based on skill relevance and urgency. 4.4 Prevent delays caused by resource shortages or mismanagement. 4.5 Assess resource efficiency through cost vs. quality analysis. 4.6 Adjust allocation plans based on project phase and complexity.
5. Review and refine quality strategies to ensure long-term success.	5.1 Conduct post-completion quality reviews. 5.2 Evaluate the success of implemented quality controls. 5.3 Identify opportunities for future improvement. 5.4 Incorporate lessons learned into new planning templates. 5.5 Present findings to senior leaders to support strategic change.

QC0010-09 Root Cause Analysis and Corrective Action Strategies

This unit focuses on understanding why electrical faults and quality issues occur and how to prevent them from happening again. Learners will learn to use structured methods like the 5 Whys, fault tree analysis, and failure mode and effects analysis (FMEA). They will identify the source of recurring issues, propose corrective actions, and monitor the effectiveness of those actions. This unit supports a proactive approach to quality control and problem solving.

Learning Outcome:	Assessment Criteria:
1. **Investigate quality failures using root cause analysis methods.**	1.1 Apply techniques like the 5 Whys, Fishbone Diagrams, and FMEA. 1.2 Gather relevant inspection, design, and site data. 1.3 Interview personnel involved in the failed process. 1.4 Identify whether failures are people-, process-, or system-related. 1.5 Prioritise root causes based on risk and frequency. 1.6 Document investigation findings in structured formats.
2. **Identify systemic issues affecting electrical performance.**	2.1 Detect repeated patterns of failure across systems or teams. 2.2 Analyse historical fault logs and audit reports. 2.3 Evaluate how design, procurement, or installation processes contribute to recurring issues. 2.4 Recommend procedural or policy changes to eliminate systemic flaws. 2.5 Assess risks of allowing systemic issues to persist. 2.6 Escalate findings to decision-makers with supporting evidence.
3. **Develop and implement effective corrective and preventive actions.**	3.1 Formulate actions that directly address identified root causes. 3.2 Assign clear responsibilities and timelines for implementation. 3.3 Validate feasibility of proposed actions before rollout. 3.4 Monitor early stages of implementation for issues. 3.5 Communicate corrective plans across teams.

	3.6 Integrate lessons learned into future planning.
4. Monitor the effectiveness of corrective strategies over time.	4.1 Collect follow-up data post-implementation to verify improvements. 4.2 Adjust actions where KPIs show limited or no improvement. 4.3 Schedule formal reviews at defined intervals. 4.4 Track recurrence rates of previously resolved issues. 4.5 Engage feedback from operations teams on action success. 4.6 Update quality procedures based on monitoring outcomes.
5. Promote a culture of accountability and continuous improvement.	5.1 Encourage open reporting of mistakes without blame. 5.2 Recognise staff who contribute to long-term problem resolution. 5.3 Embed RCA methods into standard procedures. 5.4 Facilitate team workshops for collaborative improvement. 5.5 Report improvement achievements to motivate others. 5.6 Link accountability with recognition, not punishment.

QC0010-10- Integration of Quality Control with Health and Safety Systems

This unit explores how quality control activities must align with workplace health and safety systems. Learners will understand how safety policies, risk assessments, permits to work, and control of hazardous energy relate to electrical inspections and testing. The unit helps learners ensure that quality assurance does not compromise safety and that both systems support each other in preventing accidents and maintaining compliance.

Learning Outcome:	Assessment Criteria:
1. Align quality assurance processes with health and safety regulations.	1.1 Cross-reference inspection and safety documentation. 1.2 Identify shared requirements in ISO 9001 and ISO 45001 standards. 1.3 Ensure that safety risks are assessed during quality planning. 1.4 Conduct joint reviews of high-risk activities. 1.5 Align documentation controls for both systems. 1.6 Reduce duplication through integrated checklists.
2. Coordinate safety and quality audits for comprehensive compliance.	2.1 Plan combined audits with shared scopes and schedules. 2.2 Use audit tools that assess both technical and safety compliance. 2.3 Share audit findings across quality and safety departments. 2.4 Address overlapping non-conformities with joint corrective actions. 2.5 Provide training on combined audit expectations. 2.6 Evaluate the efficiency of integrated audit approaches. 2.7 Maintain records supporting dual compliance.
3. Address overlaps between safety risks and quality defects.	3.1 Identify how poor workmanship contributes to safety failures. 3.2 Assess risks arising from material non-conformities. 3.3 Implement controls that satisfy both quality and safety needs. 3.4 Report defects that trigger safety hazards immediately. 3.5 Track cases where quality and safety incidents co-occur.

4. Promote safe working practices through integrated management systems.	4.1 Incorporate safety reminders into quality checklists. 4.2 Ensure that risk assessments are included in quality documentation. 4.3 Encourage teams to report both quality and safety concerns. 4.4 Monitor site culture for commitment to safety and quality equally. 4.5 Train supervisors in both quality assurance and H&S systems.
5. Evaluate the impact of health and safety on overall quality outcomes	5.1 Measure how safety incidents disrupt quality performance. 5.2 Analyse the cost of rework due to unsafe practices. 5.3 Link accident trends to quality audit findings. 5.4 Use integrated reports to make system-wide improvements. 5.5 Recommend policy changes based on combined impact analysis.

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