



LICQual

Level 3 Diploma in Civil Quality Control and Quality Assurance QC / QA

Qualification Specification

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Qualification Specifications about

LICQual level 3 Diploma in Civil Quality Control and Quality Assurance QC/QA

About LICQual

LICQual is a globally recognized awarding body based in the United Kingdom. Renowned for its commitment to excellence in education, LICQual specializes in delivering high-quality qualifications designed to meet the evolving needs of international learners, professionals, and industries. LICQual is dedicated to fostering innovative and flexible learning pathways, providing learners with the tools and knowledge to excel in dynamic professional landscapes. The organization emphasizes adherence to international qualification frameworks and standards, ensuring global recognition and applicability of its certifications.

The vision of LICQual is to establish itself as a global benchmark in quality education and skills development. Its mission is to equip individuals and organizations with internationally recognized qualifications that enhance employability, professional productivity, and academic progression.

Underpinned by a team of experienced professionals, including examiners, moderators, and assessors, LICQual ensures the highest standards of quality assurance and continuous improvement. Its qualifications are designed to empower individuals with the expertise and competencies necessary to thrive in today's competitive and ever-changing global environment.

Course Overview

The LICQual Level 3 Diploma in Civil Quality Control and Quality Assurance (QC/QA) is a comprehensive qualification designed to prepare professionals for quality management roles in the civil engineering and construction industries. This program delivers a solid foundation in quality assurance principles, regulatory compliance, risk management, and advanced quality control techniques, ensuring projects meet international standards for safety and reliability.

This diploma is ideal for civil engineers, QA/QC technicians, construction managers, and project supervisors looking to advance their careers or specialize in quality management. By the end of the course, participants will be proficient in applying quality management systems, conducting material inspections, implementing risk mitigation strategies, and ensuring compliance with construction standards.

Graduates of this program are well-positioned for roles such as Quality Assurance Manager, Technical Inspector, or Project Supervisor, with opportunities for further specialization or advanced studies. With its industry-aligned curriculum and focus on practical application, the LICQual Level 3 Diploma equips professionals to excel in maintaining the highest standards of quality in civil engineering projects.

Certification Framework

Qualification title	LICQual level 3 Diploma in Civil Quality Control and Quality Assurance QC/QA
Course ID	LICQ2200171
Qualification Credits	60 Credits
Course Duration	3 to 6 Months
Grading Type	Pass / Fail
Competency Evaluation	Coursework / Assignments / Verifiable Experience
Assessment	<p>The assessment and verification process for LICQual qualifications ensures that learners achieve the required standards and maintain consistency across all Approved Training Centres (ATCs). This process is divided into two key stages:</p> <p>Internal Assessment and Verification:</p> <ul style="list-style-type: none"> ✓ This stage is conducted by the staff at the ATC, ensuring that learners meet the qualification standards through ongoing assessments. ✓ Internal Quality Assurance (IQA) is performed by the centre's designated IQA staff to validate and maintain the integrity of the assessment processes. <p>External Quality Assurance:</p> <ul style="list-style-type: none"> ✓ This stage is overseen by LICQual AB verifiers, who periodically review the centre's assessment and IQA procedures. ✓ The external verification ensures that assessments adhere to the required standards and that consistent practices are maintained across all centres.

Entry Requirements

To enroll in the LICQual Level 3 Diploma in Civil Quality Control and Quality Assurance, candidates should meet the following criteria:

- ✓ A minimum of a Level 2 qualification in Civil Engineering or a related field, or equivalent work experience.
- ✓ Basic knowledge of electrical systems and components.
- ✓ Proficiency in English, both written and spoken, to complete coursework and assessments effectively.

Qualification Structure

This qualification comprises 6 mandatory units, totaling 60 credits. Candidates must successfully complete all mandatory units to achieve the qualification.

Mandatory Units		
Unit Ref#	Unit Title	Credits
LICQ2200171 - 1	Introduction to Quality Control and Assurance in Civil Engineering	10
LICQ2200171 - 2	Construction Standards and Regulatory Compliance	10
LICQ2200171 - 3	Quality Control Processes and Tools	10
LICQ2200171 - 4	Material Testing and Inspection	10
LICQ2200171 - 5	Risk Management in Quality Assurance	10
LICQ2200171 - 6	Project Documentation and Reporting.	10

Centre Requirements

To ensure the quality and consistency of training, assessment, and learner support for the LICQual level 3 Diploma in Civil Quality Control and Quality Assurance QC/QA, centres must meet the following requirements:

1. Approval to Deliver the Qualification

- ✓ Centres must obtain formal approval from LICQual to deliver this specific qualification, regardless of prior registration.
- ✓ The approval process involves a review of resources, staff qualifications, and policies to confirm alignment with the program's standards.

2. Qualified Staff

- ✓ **Tutors:**
 - Must hold qualifications relevant to Civil Quality Control and Quality Assurance, such as Civil Engineering, Construction Management, or a related field at Level 6 or higher.
 - Should possess experience in teaching, training, or industrial practice in QC/QA principles.
- ✓ **Assessors:**
 - Must possess a recognized assessor qualification (e.g., TAQA or equivalent) and demonstrate substantial expertise in civil quality control and assurance practices.
 - Practical experience in assessing QA/QC within civil engineering or construction projects is essential.
- ✓ **Internal Quality Assurers (IQAs):**
 - Must be suitably qualified with recognized IQA certifications and have proven experience in overseeing assessment quality in civil or construction-related fields.
 - Should be proficient in providing effective monitoring and guidance to maintain high-quality assessment standards.

3. Learning Facilities

Centres must provide appropriate learning environments to support both theoretical and practical components of the program:

- ✓ **Classrooms:**
 - Modern, well-equipped classrooms with multimedia capabilities for delivering interactive lectures on civil engineering quality control and assurance principles.
 - Learning resources should include access to current civil engineering codes, standards (e.g., ISO 9001), and QA/QC frameworks.
- ✓ **Practical Areas:**
 - Dedicated spaces or access to real-world construction sites or projects for hands-on learning, such as concrete testing labs, material inspection facilities, or simulated quality audits.
 - Resources to conduct demonstrations of QA/QC procedures, including documentation, defect analysis, and report preparation.
- ✓ **Technology Access:**
 - High-performance computers equipped with civil engineering software (e.g., AutoCAD, QA/QC tracking tools, and materials testing databases).

- Reliable internet connectivity and access to digital resources like construction quality management platforms and online QA/QC tools.
- Tools for data analysis and project management to support research, case studies, and collaborative project work.

4. Health and Safety Compliance

- ✓ Centres must comply with relevant health and safety regulations, ensuring that learning environments are safe and accessible.
- ✓ Regular risk assessments must be conducted to uphold safety standards, particularly during practical training or fieldwork activities.

5. Resource Requirements

- ✓ **Learning Materials:** Approved manuals, textbooks, and supplementary resources aligned with the curriculum and learning outcomes.
- ✓ **Assessment Tools:** Templates, marking guides, and standardized forms for conducting and recording assessments.
- ✓ **E-Learning Systems:** If offering online or hybrid learning, centres must provide a robust Learning Management System (LMS) to deliver course content and facilitate assessments remotely.

6. Assessment and Quality Assurance

- ✓ Centres must follow LICQual's standards for assessments, ensuring they are fair, valid, and reliable.
- ✓ Internal Quality Assurance (IQA) processes must be implemented to monitor assessments and offer constructive feedback to assessors.
- ✓ External verification visits by LICQual will be conducted periodically to ensure compliance with awarding body standards.

7. Learner Support

Centres must provide learners with access to guidance and support throughout the program, including:

- ✓ Academic assistance for coursework and assessments.
- ✓ Career guidance to support professional progression.
- ✓ Additional support for learners with specific needs, such as disabilities or language barriers.

8. Policies and Procedures

Centres must maintain and implement the following policies, as required by LICQual:

- ✓ Equal Opportunities Policy.
- ✓ Health and Safety Policy.
- ✓ Safeguarding Policies and Procedures.
- ✓ Complaints and Appeals Procedures.
- ✓ Data Protection and Confidentiality Policy.

9. Regular Reporting to LICQual

- ✓ Centres must submit periodic updates to LICQual, including details on learner enrollment, progress, and completion rates.
- ✓ Comprehensive records of assessments and learner achievements must be maintained and made available for external auditing.

By meeting these rigorous requirements, centres can ensure the successful delivery of the LICQual level 3 Diploma in Civil Quality Control and Quality Assurance QC / QA , providing learners with the highest quality education and professional development opportunities.

Support for Candidates

Centres should ensure that materials developed to support candidates:

- ✓ Enable the tracking of learners' progress as they achieve the specified learning outcomes and assessment criteria.
- ✓ Provide clear guidance on accessing LICQual's policies and procedures.
- ✓ Establish robust mechanisms to allow Internal and External Quality Assurance personnel to verify and authenticate evidence efficiently.

This structured approach promotes transparency, enhances the learning experience for candidates, and ensures adherence to high-quality assurance standards.

Assessment

This qualification is competence-based, requiring candidates to demonstrate their skills, knowledge, and understanding as outlined in the qualification units. The assessment is designed to measure candidates' proficiency against established standards. Key aspects include:

1. Assessment Process:

- ✓ Assessments must be conducted by qualified and experienced assessors.
- ✓ Candidates are required to compile a portfolio of evidence demonstrating achievement of 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

LICQ2200171 – 1: Introduction to Quality Control and Assurance in Civil Engineering

The aim of the course is to provide learners with a foundational understanding of quality control and quality assurance within the civil engineering sector. It equips participants with the knowledge and skills necessary to recognize the importance of maintaining quality standards in construction projects, understand the distinct roles and responsibilities within QC/QA, and effectively engage with key stakeholders to ensure successful project outcomes.

Learning Outcome:	1. Define the concepts of quality control and quality assurance in the context of civil engineering projects.
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Demonstrate a clear understanding of the definitions of quality control (QC) and quality assurance (QA) within the context of civil engineering projects. 1.2. Explain the roles and functions of QC and QA in ensuring the successful delivery of construction projects. 1.3. Distinguish between the processes and objectives of quality control and quality assurance, highlighting their interdependence. 1.4. Identify the primary goals of QC and QA in preventing defects and ensuring compliance with industry standards. 1.5. Discuss how QC and QA contribute to meeting safety, environmental, and regulatory requirements in civil engineering projects. 1.6. Illustrate the relationship between quality management systems (QMS) and the principles of QC and QA. 1.7. Provide examples of how QC and QA practices are applied at different stages of a civil engineering project. 1.8. Relate the importance of maintaining quality standards in the context of cost control, time management, and client satisfaction. 1.9. Recognize the impact of effective QC and QA on project risk management and long-term sustainability.
Learning Outcome:	2. Explain the significance of maintaining quality standards in civil engineering construction and its impact on project success.
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Demonstrate an understanding of the role of quality standards in ensuring the safety and reliability of civil engineering projects. 2.2 Identify the key components of quality standards relevant to civil engineering construction. 2.3 Explain how maintaining quality standards influences project timelines, cost management, and resource allocation. 2.4 Discuss the impact of quality standards on the durability and performance of civil engineering structures. 2.5 Analyze the correlation between quality assurance practices and overall project success, including client satisfaction and stakeholder confidence. 2.6 Evaluate the potential risks and consequences of not adhering to established quality standards in civil engineering projects. 2.7 Illustrate how quality standards contribute to compliance with legal,

	<p>environmental, and regulatory requirements.</p> <p>2.8 Provide examples of how quality management systems and industry standards drive continuous improvement in construction practices.</p> <p>2.9 Assess the long-term benefits of maintaining quality standards, including enhanced reputation and reduced risk of failure or rework.</p>
Learning Outcome:	3. Differentiate between quality control and quality assurance roles and responsibilities.
Assessment Criteria:	<p>3.1 Demonstrate a clear understanding of the definitions of quality control (QC) and quality assurance (QA) within civil engineering.</p> <p>3.2 Identify and explain the distinct roles of QC and QA professionals in the context of a construction project.</p> <p>3.3 Describe how quality control activities focus on monitoring and measuring the quality of materials and workmanship during the construction process.</p> <p>3.4 Explain how quality assurance activities focus on ensuring that the processes, procedures, and systems are in place to meet quality standards.</p> <p>3.5 Distinguish between proactive quality assurance measures and reactive quality control procedures.</p> <p>3.6 Provide examples of key responsibilities of QC and QA personnel in terms of quality planning, documentation, and reporting.</p> <p>3.7 Explain the relationship between QC and QA teams and how they collaborate to maintain overall project quality.</p> <p>3.8 Analyze the impact of ineffective division of roles between QC and QA on project outcomes, including cost, time, and quality.</p> <p>3.9 Evaluate the importance of clearly defined QC and QA roles to ensure compliance with international standards and regulatory requirements.</p>
Learning Outcome:	4. Identify key stakeholders involved in the quality management process and their contributions.
Assessment Criteria:	<p>4.1 Accurately identify the key stakeholders involved in the quality management process within civil engineering projects.</p> <p>4.2 Demonstrate an understanding of the role and responsibilities of each stakeholder in the quality management process.</p> <p>4.3 Explain how stakeholders contribute to maintaining quality standards throughout the project lifecycle.</p> <p>4.4 Distinguish between internal and external stakeholders and their respective impacts on quality management.</p> <p>4.5 Provide examples of how stakeholders collaborate to ensure project quality, from design to completion.</p> <p>4.6 Assess the influence of each stakeholder on the success or failure of quality management efforts.</p> <p>4.7 Explain the importance of effective communication and coordination among stakeholders for successful quality management.</p> <p>4.8 Evaluate the role of stakeholders in resolving quality-related issues during the project.</p> <p>4.9 Apply knowledge of stakeholder contributions to case studies, showing practical understanding of their impact on quality outcomes.</p>

LICQ2200171 – 2: Construction Standards and Regulatory Compliance

The aim of this course is to familiarize learners with construction standards and regulatory compliance critical to civil engineering projects. It focuses on equipping participants with the ability to identify applicable standards, assess legal and regulatory frameworks, and evaluate compliance to ensure safe, sustainable, and legally compliant construction practices while understanding the consequences of non-compliance on project outcomes.

Learning Outcome:	1. Identify major construction standards and codes applicable to civil engineering projects.
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Identify and list the major international and regional construction standards and codes relevant to civil engineering projects. 1.2. Demonstrate an understanding of the key principles and requirements outlined in recognized standards such as ISO, BS, ASTM, or EN. 1.3. Explain the role of construction standards in ensuring safety, sustainability, and structural integrity in civil engineering projects. 1.4. Evaluate the scope and application of these standards within different types of civil engineering projects, including infrastructure, residential, and industrial. 1.5. Differentiate between mandatory regulatory codes and voluntary industry standards in the context of civil engineering. 1.6. Assess the impact of construction standards on project planning, design, and execution processes. 1.7. Identify the key stakeholders responsible for adhering to construction standards during various stages of a project. 1.8. Discuss the consequences of non-compliance with relevant construction standards and codes. 1.9. Apply knowledge of construction standards and codes to practical scenarios, ensuring compliance with relevant regulatory frameworks.
Learning Outcome:	2. Evaluate the importance of regulatory compliance in ensuring safe and sustainable construction practices.
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Demonstrate an understanding of key regulations and standards governing construction safety and sustainability. 2.2 Explain how regulatory compliance contributes to minimizing risks and ensuring worker safety on construction sites. 2.3 Assess the role of regulatory compliance in preventing environmental impact and promoting sustainable practices in construction. 2.4 Evaluate the legal consequences of non-compliance with construction regulations, including potential fines and legal actions. 2.5 Analyze the relationship between regulatory compliance and quality assurance in construction projects. 2.6 Discuss the impact of regulatory compliance on the reputation and long-term success of construction firms. 2.7 Provide examples of best practices in regulatory compliance and their implementation in construction projects. 2.8 Identify the stakeholders responsible for ensuring regulatory compliance in civil engineering and construction projects. 2.9 Review case studies of non-compliance and its negative effects on safety, project

	timelines, and costs.
Learning Outcome:	3. Apply relevant legal and regulatory frameworks to assess compliance in a given civil engineering scenario.
Assessment Criteria:	<p>3.1 Identify the key legal and regulatory frameworks applicable to the civil engineering scenario, referencing relevant national and international standards.</p> <p>3.2 Demonstrate an understanding of the scope and purpose of each identified legal and regulatory requirement.</p> <p>3.3 Assess the project's compliance with specific regulations and codes relevant to health, safety, and environmental impact.</p> <p>3.4 Analyze how the legal and regulatory frameworks influence construction practices and project delivery.</p> <p>3.5 Identify potential risks and consequences of non-compliance with legal and regulatory requirements in the given scenario.</p> <p>3.6 Evaluate the methods for monitoring and ensuring compliance throughout the project lifecycle.</p> <p>3.7 Interpret the legal obligations of stakeholders involved in the project, including contractors, suppliers, and regulatory authorities.</p> <p>3.8 Recommend appropriate actions or modifications to the project to achieve full compliance with legal and regulatory standards.</p> <p>3.9 Present a well-structured report documenting the compliance assessment and outlining corrective actions where necessary.</p>
Learning Outcome:	4. Discuss the implications of non-compliance with construction standards on project outcomes.
Assessment Criteria:	<p>4.1 Clearly define non-compliance with construction standards and its potential causes in civil engineering projects.</p> <p>4.2 Explain how non-compliance can affect project timelines, costs, and overall quality.</p> <p>4.3 Analyze the impact of non-compliance on safety and environmental risks during construction.</p> <p>4.4 Discuss the legal and regulatory consequences of failing to meet construction standards.</p> <p>4.5 Evaluate the financial repercussions, including potential fines, penalties, and rework costs associated with non-compliance.</p> <p>4.6 Examine the effect of non-compliance on project reputation, client relationships, and future business opportunities.</p> <p>4.7 Assess how non-compliance can lead to delays in project approvals, inspections, and certifications.</p> <p>4.8 Investigate the long-term effects on structural integrity, durability, and performance of completed projects.</p> <p>4.9 Recommend strategies for mitigating the risks of non-compliance and ensuring adherence to construction standards throughout the project lifecycle.</p>

LICQ2200171 – 3 Quality Control Processes and Tools

The aim of this course is to provide learners with a comprehensive understanding of quality control processes and tools used in civil engineering. It enables participants to develop and implement effective quality control systems, utilize industry-standard tools and techniques, analyze project requirements to recommend suitable measures, and evaluate the performance of quality control processes to ensure optimal project outcomes.

Learning Outcome:	1. Describe the steps involved in developing and implementing quality control processes.
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Identify the key stages involved in developing a quality control process, including planning, design, implementation, monitoring, and evaluation. 1.2. Explain the importance of defining clear quality objectives and standards at the outset of the process. 1.3. Describe the role of stakeholder involvement in the development of quality control processes, including communication and collaboration. 1.4. Outline the procedures for selecting appropriate quality control methods and techniques for specific project requirements. 1.5. Explain how to allocate resources effectively for the successful implementation of the quality control process. 1.6. Discuss the process of setting up measurement tools, data collection methods, and performance indicators to track quality. 1.7. Describe the steps involved in training and educating staff to ensure they understand and apply quality control procedures correctly. 1.8. Explain the process of continuous monitoring and assessment to ensure adherence to quality standards throughout the project lifecycle. 1.9. Describe how to review and update quality control processes based on feedback, audits, and project outcomes to drive continuous improvement.
Learning Outcome:	2. Identify common tools and techniques used for quality control in civil engineering (e.g., checklists, control charts, inspection plans).
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Demonstrate knowledge of various quality control tools used in civil engineering, such as checklists, control charts, and inspection plans. 2.2 Accurately describe the purpose and function of each identified tool in the context of civil engineering projects. 2.3 Explain how each tool contributes to maintaining quality standards throughout different project phases. 2.4 Identify the appropriate tool or technique to use based on specific quality control requirements and project scenarios. 2.5 Illustrate how checklists can be used to ensure compliance with quality standards during inspections and assessments. 2.6 Describe how control charts are applied to monitor variation and identify trends in project quality data. 2.7 Discuss how inspection plans are structured and the role they play in systematic quality control processes. 2.8 Evaluate the effectiveness of each tool in different civil engineering environments, providing examples of their application. 2.9 Demonstrate the ability to integrate these tools within a comprehensive quality

	management system to ensure consistent project quality.
Learning Outcome:	3. Analyze case studies to recommend appropriate quality control measures for various project stages.
Assessment Criteria:	<p>3.1 Review and understand the context and scope of the provided case study, including project type, scale, and objectives.</p> <p>3.2 Identify key quality control challenges and issues faced at different stages of the project (e.g., design, construction, commissioning)</p> <p>3.3 Evaluate the specific quality requirements for each project stage, considering industry standards, regulations, and best practices.</p> <p>3.4 Assess the current quality control measures in place, highlighting any gaps or areas for improvement.</p> <p>3.5 Recommend appropriate quality control tools and techniques tailored to each project stage, supported by relevant industry standards.</p> <p>3.6 Justify the selection of quality control measures based on their effectiveness, efficiency, and alignment with project goals.</p> <p>3.7 Analyze the potential risks associated with poor quality control at each stage and propose corrective actions or preventive measures.</p> <p>3.8 Provide a clear and structured action plan for implementing recommended quality control measures, including timelines and resource allocation.</p> <p>3.9 Demonstrate an understanding of the impact of quality control measures on overall project success, sustainability, and client satisfaction.</p>
Learning Outcome:	4. Evaluate the effectiveness of quality control processes using industry-standard metrics.
Assessment Criteria:	<p>4.1 Identify relevant industry-standard metrics for evaluating quality control processes in civil engineering projects.</p> <p>4.2 Demonstrate an understanding of key performance indicators (KPIs) used to measure quality control effectiveness, such as defect rates, rework levels, and inspection pass/fail ratios.</p> <p>4.3 Collect and analyze data from various quality control activities, including inspections, testing, and process monitoring, to assess the effectiveness of the control measures implemented.</p> <p>4.4 Compare actual performance data with predefined quality control benchmarks to identify discrepancies or areas of improvement.</p> <p>4.5 Evaluate the effectiveness of corrective actions taken in response to quality control failures or non-conformance issues.</p> <p>4.6 Use statistical tools, such as control charts and Pareto analysis, to assess process stability and identify quality trends.</p> <p>4.7 Review the results of quality audits and assessments to determine compliance with industry standards and project-specific quality objectives.</p> <p>4.8 Assess the impact of quality control processes on overall project delivery, including timelines, costs, and client satisfaction.</p> <p>4.9 Provide recommendations for continuous improvement based on the analysis of quality control metrics and their alignment with project goals and industry standards.</p>

LICQ2200171 – 4: Material Testing and Inspection

The aim of this course is to equip learners with the knowledge and skills required for material testing and inspection in civil engineering. Participants will gain an understanding of testing principles and methods, develop the ability to perform standard procedures to evaluate material quality, interpret test results to detect defects or non-conformance, and apply inspection protocols to ensure material compliance with quality standards.

Learning Outcome:	1. Explain the principles and methods of material testing for common construction materials (e.g., concrete, steel, aggregates).
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Demonstrate a clear understanding of the key principles of material testing in civil engineering, including the importance of testing for quality assurance. 1.2. Identify the common construction materials (e.g., concrete, steel, aggregates) that require testing and explain their specific testing requirements. 1.3. Describe the methods used for testing materials, including both destructive and non-destructive testing techniques. 1.4. Explain the role of material testing in ensuring compliance with international construction standards and regulations. 1.5. Evaluate the relevance of various material testing methods for different stages of construction projects. 1.6. Discuss the factors that influence material selection and testing, such as environmental conditions, load-bearing requirements, and durability. 1.7. Demonstrate knowledge of standard testing procedures for concrete, steel, and aggregates, including procedures for sample preparation and analysis. 1.8. Interpret the significance of testing results and their impact on material performance, safety, and project outcomes. 1.9. Apply international standards (e.g., ASTM, ISO) in the selection, execution, and reporting of material tests to ensure reliability and accuracy.
Learning Outcome:	2. Perform standard testing procedures to assess the quality and suitability of materials for civil engineering projects.
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Demonstrate the ability to prepare and set up materials for standard testing procedures according to established guidelines. 2.2 Accurately follow testing protocols for common construction materials such as concrete, steel, and aggregates. 2.3 Ensure proper calibration of testing equipment to maintain accuracy and reliability in results. 2.4 Apply appropriate testing methods based on the material type and intended use in civil engineering projects. 2.5 Record all test parameters, procedures, and results in a clear, systematic, and accurate manner. 2.6 Identify any deviations from expected results during testing and take corrective actions as necessary. 2.7 Interpret and analyze test results to determine material suitability and compliance with relevant quality standards. 2.8 Document and report findings in line with industry standards and project requirements. 2.9 Adhere to safety standards and regulatory requirements throughout the testing

	process to ensure a safe working environment.
Learning Outcome:	3. Interpret testing results to identify potential defects or non-conformance issues.
Assessment Criteria:	<p>3.1 Demonstrate the ability to accurately analyze material test results according to established industry standards and protocols.</p> <p>3.2 Identify common defects or non-conformance issues that may arise during testing, such as inconsistencies in material composition or structural integrity.</p> <p>3.3 Utilize industry-recognized tools and software to interpret testing data effectively and identify potential issues.</p> <p>3.4 Compare test results against specified material requirements, design specifications, and relevant standards.</p> <p>3.5 Apply critical thinking to assess the significance of identified defects or non-conformance issues in relation to project quality and safety.</p> <p>3.6 Document findings in clear, concise reports that outline defects, non-conformance issues, and their potential impact on project outcomes.</p> <p>3.7 Recommend corrective actions or further testing when defects or non-conformance issues are identified.</p> <p>3.8 Communicate test results and identified issues effectively to stakeholders, ensuring clarity and understanding of the implications for the project.</p> <p>3.9 Demonstrate adherence to international standards for testing procedures and reporting, ensuring the validity and reliability of the testing process.</p>
Learning Outcome:	4. Demonstrate competency in inspection protocols and documentation for material quality assurance.
Assessment Criteria:	<p>4.1 Clearly articulate the purpose and importance of material inspection protocols in ensuring quality assurance in civil engineering projects.</p> <p>4.2 Accurately perform material inspections in accordance with established international standards and industry best practices.</p> <p>4.3 Demonstrate proficiency in using standard inspection tools and equipment to evaluate material quality.</p> <p>4.4 Complete inspection reports with precision, ensuring all required information is accurately recorded and compliant with industry standards.</p> <p>4.5 Apply relevant testing methods to assess the suitability of materials for specific civil engineering applications.</p> <p>4.6 Ensure all non-conformance issues are documented clearly, with appropriate corrective actions outlined.</p> <p>4.7 Review and analyze material inspection results to identify potential defects or compliance issues.</p> <p>4.8 Utilize industry-standard software for recording and reporting material inspection data efficiently.</p> <p>4.9 Ensure the integrity and traceability of inspection records, maintaining documentation that aligns with regulatory and compliance requirements.</p>

LICQ2200171– 5: Risk Management in Quality Assurance

The aim of this course is to enable learners to understand and manage quality-related risks in civil engineering projects. Participants will learn to identify potential risks, develop effective risk mitigation strategies, implement continuous monitoring practices, and evaluate the impact of risk management on project quality and successful delivery.

Learning Outcome:	1. Identify potential risks to quality assurance in civil engineering projects.
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Identify and list common types of risks that can affect quality assurance in civil engineering projects. 1.2. Evaluate the sources of risk, including project design, materials, construction processes, and environmental factors. 1.3. Assess how each identified risk can impact project outcomes such as cost, time, safety, and compliance with standards. 1.4. Analyze the relationship between project scope changes and the introduction of new risks to quality assurance. 1.5. Recognize the role of stakeholder involvement and communication in risk identification and mitigation. 1.6. Use industry guidelines and standards to identify risks specific to civil engineering projects. 1.7. Prioritize risks based on their potential impact on the quality assurance process and overall project success. 1.8. Document the identified risks and communicate them effectively to relevant stakeholders for further analysis and action. 1.9. Monitor and review risks throughout the project lifecycle to ensure early detection and timely intervention.
Learning Outcome:	2. Develop risk mitigation strategies to address identified quality risks effectively.
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Clearly identify and assess the quality risks present in the civil engineering project, considering both internal and external factors. 2.2 Conduct a thorough analysis of the potential impact and likelihood of each identified risk on the overall project quality and delivery. 2.3 Apply relevant risk management frameworks and methodologies to develop a structured approach for addressing identified risks. 2.4 Prioritize risks based on their severity and potential consequences, ensuring that the most critical risks are mitigated first. 2.5 Design specific, actionable strategies for mitigating each risk, incorporating preventive measures and contingency plans. 2.6 Ensure that mitigation strategies are aligned with industry best practices, regulatory requirements, and project-specific standards. 2.7 Evaluate the resources required to implement the mitigation strategies, including personnel, tools, and technologies. 2.8 Communicate the risk mitigation plan clearly to all relevant stakeholders, ensuring understanding and buy-in. 2.9 Establish a monitoring and review process to track the effectiveness of mitigation strategies and make adjustments as necessary throughout the project lifecycle.

Learning Outcome:	3. Evaluate the role of continuous monitoring in managing quality-related risks.
Assessment Criteria:	<p>3.1 Explain the concept of continuous monitoring in the context of quality-related risks in civil engineering projects.</p> <p>3.2 Identify the key components and techniques used in continuous monitoring for risk management.</p> <p>3.3 Assess how continuous monitoring contributes to early detection and mitigation of potential quality risks.</p> <p>3.4 Evaluate the effectiveness of various monitoring tools and technologies in managing quality-related risks.</p> <p>3.5 Analyze the relationship between continuous monitoring and decision-making in risk management processes.</p> <p>3.6 Discuss the role of real-time data in improving quality assurance and risk mitigation strategies.</p> <p>3.7 Review industry standards and best practices for implementing continuous monitoring in quality management systems.</p> <p>3.8 Assess the impact of continuous monitoring on maintaining project quality and meeting regulatory compliance.</p> <p>3.9 Propose recommendations for enhancing continuous monitoring processes to reduce quality-related risks in civil engineering projects.</p>
Learning Outcome:	4. Assess the impact of risk management practices on overall project quality and delivery.
Assessment Criteria:	<p>4.1 Evaluate how risk management practices influence the consistency and reliability of project outcomes.</p> <p>4.2 Analyze the relationship between effective risk mitigation strategies and the reduction of project delays or cost overruns.</p> <p>4.3 Assess the impact of proactive risk identification and monitoring on maintaining quality standards throughout the project lifecycle.</p> <p>4.4 Investigate how risk management contributes to meeting regulatory requirements and industry standards for quality assurance.</p> <p>4.5 Identify the role of risk management in managing stakeholder expectations and ensuring project satisfaction.</p> <p>4.6 Examine the influence of continuous risk monitoring on the timely detection and resolution of quality-related issues.</p> <p>4.7 Assess how risk management practices contribute to resource optimization and minimize waste in the project process.</p> <p>4.8 Evaluate the long-term benefits of risk management practices on sustaining project quality and enhancing overall delivery performance.</p> <p>4.9 Analyze the impact of risk management on project team collaboration, communication, and decision-making related to quality assurance.</p>

LICQ2200171 – 6: Project Documentation and Reporting.

The aim of this course is to provide learners with the skills to effectively manage project documentation and reporting in the context of quality assurance. Participants will learn to develop comprehensive and accurate documentation, utilize industry-standard tools for reporting, and implement best practices to ensure compliance, accountability, and continuous improvement in quality-related documentation.

Learning Outcome:	1. Describe the essential components of quality-related project documentation (e.g., inspection reports, test results, non-conformance reports).
Assessment Criteria:	<ol style="list-style-type: none"> 1.1. Identify and explain the purpose of key quality-related project documentation, including inspection reports, test results, and non-conformance reports. 1.2. Describe the necessary information to be included in inspection reports, ensuring clarity and accuracy in documenting findings. 1.3. Outline the key elements of test results documentation, ensuring that all relevant data is recorded and presented in a standardized format. 1.4. Explain the process of documenting non-conformance reports, including the identification of issues, corrective actions, and timelines for resolution. 1.5. Demonstrate the ability to compile and organize documentation in a clear, concise, and consistent manner that adheres to industry standards. 1.6. Assess the importance of maintaining proper documentation for traceability, compliance, and accountability within quality assurance processes. 1.7. Ensure that all documentation is properly signed, dated, and reviewed by relevant stakeholders before being finalized. 1.8. Identify common errors or omissions in quality-related documentation and explain strategies to prevent them. 1.9. Ensure that all project documentation is archived appropriately for future reference, audits, and compliance checks.
Learning Outcome:	2. Develop accurate and comprehensive reports for documenting quality assurance activities.
Assessment Criteria:	<ol style="list-style-type: none"> 2.1 Demonstrate the ability to collect and organize relevant data from quality assurance activities. 2.2 Ensure reports are clear, concise, and free of ambiguity, using appropriate technical language and terminology 2.3 Include all required information such as inspection results, test outcomes, and any non-conformance issues in the reports. 2.4 Apply correct formatting and structure to enhance readability and consistency across all documentation. 2.5 Utilize industry-standard software and tools for creating, editing, and storing reports. 2.6 Ensure the reports reflect the actual status of the project in relation to quality assurance objectives and criteria. 2.7 Cross-reference reports with applicable standards, regulations, and compliance requirements. 2.8 Review reports for accuracy, ensuring all data is correctly represented and aligned with the relevant quality assurance activities.

	2.9 Submit reports within specified deadlines and maintain proper records for future reference and auditing purposes.
Learning Outcome:	3. Utilize industry-standard software and tools for project documentation and reporting.
Assessment Criteria:	<p>3.1 Demonstrate proficiency in using industry-standard software for creating, managing, and storing project documentation.</p> <p>3.2 Select the appropriate software tools based on the specific documentation needs of the project (e.g., inspection reports, test results, non-conformance reports).</p> <p>3.3 Apply features of software tools to format, organize, and present documentation in a clear, structured manner.</p> <p>3.4 Utilize software tools to track project progress, update reports, and ensure real-time documentation.</p> <p>3.5 Ensure that project documentation complies with industry standards and legal requirements, including accessibility and data integrity.</p> <p>3.6 Implement version control and document management practices to maintain an accurate history of reports and revisions.</p> <p>3.7 Use software to generate standardized reports for internal and external stakeholders, ensuring consistency and clarity.</p> <p>3.8 Leverage reporting tools to analyze data and provide insights that inform decision-making and quality assurance processes.</p> <p>3.9 Regularly review and update documentation practices to align with evolving industry standards and software capabilities.</p>
Learning Outcome:	4. Review and improve documentation practices to ensure compliance and accountability.
Assessment Criteria:	<p>4.1 Identify key documentation practices required for compliance with relevant industry standards and regulations.</p> <p>4.2 Assess current documentation practices to determine their effectiveness in ensuring compliance and accountability.</p> <p>4.3 Conduct audits of project documentation to evaluate accuracy, completeness, and adherence to regulatory requirements.</p> <p>4.4 Compare existing documentation practices with international standards and best practices to identify areas for improvement.</p> <p>4.5 Develop strategies to enhance documentation practices, ensuring they meet compliance standards and support accountability.</p> <p>4.6 Implement improved documentation procedures, including templates, workflows, and reporting systems.</p> <p>4.7 Train team members on updated documentation practices and the importance of compliance and accountability.</p> <p>4.8 Monitor the effectiveness of new documentation practices through regular reviews and feedback.</p> <p>4.9 Ensure continuous improvement by integrating feedback from audits, team input, and lessons learned into the documentation process.</p>

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