ICTQual AB



Qualification Specification





ICTQual AB

Level 2 Diploma in Agriculture Engineering

30 Credits – 3 Months

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Qualification Specifications about

ICTQual Level 2 Diploma in Agriculture Engineering 30 Credits – 3 Months

About ICTQual AB

ICTQual AB UK Ltd. 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 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.

The organization prides itself on delivering high-quality educational solutions through a network of Approved Training Centres worldwide. Their robust curriculum and innovative teaching methodologies are designed to 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 continuously evolves its programs to stay ahead of industry trends and technological advancements.

ICTQual AB's vision is to set benchmarks for educational excellence while promoting inclusivity and integrity. Their unwavering focus on quality and accessibility makes them a trusted partner in shaping future-ready professionals and advancing societal progress globally.

Course Overview

The ICTQual Level 2 Diploma in Agriculture Engineering is a 3-month, 30-credit program designed for individuals looking to build foundational knowledge and practical skills in agricultural engineering. The course introduces learners to key areas such as basic farm machinery operation, routine maintenance techniques, irrigation systems, and environmental practices. Emphasis is placed on understanding modern tools and technologies used in agricultural settings, providing a strong platform for further studies or entry-level employment.

This program is ideal for individuals starting their career journey or upskilling for roles in agricultural operations. Hands-on learning ensures that students can effectively apply their skills in real-world scenarios, preparing them for roles such as farm assistants, machinery operators, and equipment maintenance technicians.

Certification Framework

Qualification title	Level 2 Diploma in Agriculture Engineering 30 Credits – 3 Months	
Course ID	AGE0005	
Qualification Credits	30 Credits	
Course Duration	3 Months	



Grading Type	Pass / Fail	
Competency Evaluation	Coursework / Assignments / Verifiable Experience	
Assessment	The assessment and verification process for ICTQual qualifications involves two key stages:	
	Internal Assessment and Verification:	
	✓ Conducted by the staff at the Approved Training Centre (ATC). Ensures 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 processes.	
External Quality Assurance:		
	 Managed by ICTQual AB 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 Level 2 Diploma in Agriculture Engineering 3-Month, 30-Credit; candidates must meet the following entry requirements:

- ✓ Applicants must be at least 16 years old.
- ✓ A minimum of a Level 1 qualification (or equivalent) in a related field such as engineering, technology, or a technical discipline. Alternatively, applicants should have at least GCSEs or equivalent qualifications, including Mathematics and English.
- ✓ While no prior experience in agriculture engineering is required, applicants with a basic understanding of mechanics, technology, or agriculture may find the course content more accessible.
- ✓ For non-native English speakers, proof of English language proficiency may be required to ensure that applicants can fully engage with the course material.

Qualification Structure

This qualification comprises 3 mandatory units, totaling 30 credits. Candidates must successfully complete all mandatory units to achieve the qualification.

	Mandatory Units	
Unit Ref#	Unit Title	Credits
AGE0005-1	Agricultural Machinery and Equipment Operations	10
AGE0005-2	Maintenance and Repair of Agricultural Equipment	10
AGE0005-3	Health, Safety, and Environmental Practices in Agriculture Engineering	10

Centre Requirements

Even if a centre is already registered with ICTQual AB, it must meet specific requirements to deliver ICTQual Level 2 Diploma in Agriculture Engineering is a 3-Month, 30-Credit. These standards ensure the quality and consistency of training, assessment, and learner support.

1. Approval to Deliver the Qualification



- ✓ Centres must obtain formal approval from ICTQual AB to deliver this specific qualification, even if they are already registered.
- ✓ The approval process includes a review of resources, staff qualifications, and policies relevant to the program.

2. Qualified Staff

- ✓ **Tutors**: Must have relevant qualifications in Agriculture Engineering at Level 3 or higher, alongside teaching/training experience.
- ✓ **Assessors**: Must hold a recognized assessor qualification and demonstrate expertise in Agriculture Engineering.
- ✓ Internal Quality Assurers (IQAs): Must be appropriately qualified and experienced to monitor the quality of assessments.

3. Learning Facilities

Centres must have access to appropriate learning facilities, which include:

- ✓ **Classrooms**: Modern classrooms equipped with multimedia tools to deliver comprehensive theoretical instruction on agricultural systems, sustainable practices, and modern farming technologies.
- ✓ Practical Areas: Hands-on training areas featuring advanced agricultural machinery, irrigation systems, soil testing kits, and greenhouse facilities to provide practical experience in real-world farming and engineering techniques.
- ✓ Technology Access: High-performance computers with industry-standard software (e.g., GIS for land management, precision farming tools, and crop modeling software) and internet connectivity for research, simulations, and project development.

4. Health and Safety Compliance

- ✓ Centres must ensure that practical training environments comply with relevant health and safety regulations.
- ✓ Risk assessments must be conducted regularly to maintain a safe learning environment.

5. Resource Requirements

- ✓ **Learning Materials:** Approved course manuals, textbooks, and study guides aligned with the curriculum.
- ✓ Assessment Tools: Templates, guidelines, and resources for conducting and recording assessments.
- ✓ **E-Learning Systems:** If offering online or hybrid learning, centres must provide a robust Learning Management System (LMS) to facilitate remote delivery.

6. Assessment and Quality Assurance

- ✓ Centres must adhere to ICTQual's assessment standards, ensuring that all assessments are fair, valid, and reliable.
- ✓ Internal quality assurance (IQA) processes must be in place to monitor assessments and provide feedback to assessors.
- ✓ External verification visits from ICTQual will ensure compliance with awarding body standards.

7. Learner Support

- ✓ Centres must provide learners with access to guidance and support throughout the program, including:
- ✓ Academic support for coursework.
- ✓ Career guidance for future progression.



✓ Additional support for learners with specific needs (e.g., disabilities or language barriers).

8. Policies and Procedures

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

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

9. Regular Reporting to ICTQual

- ✓ Centres must provide regular updates to ICTQual AB on learner enrollment, progress, and completion rates.
- ✓ Centres are required to maintain records of assessments and learner achievements for external auditing 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'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

AGE0005-1: Agricultural Machinery and Equipment Operations

The aim of this study unit is to provide learners with a comprehensive understanding of the various types of agricultural machinery and their specific functions in modern farming practices. It seeks to develop practical skills in the safe operation of key agricultural equipment, such as tractors, harvesters, and irrigation systems. Learners will be equipped with the knowledge to apply effective operational techniques, optimizing machinery performance while minimizing wear and tear.

Learning Outcome:	Assessment Criteria:
1. Understand the different types of agricultural	1.1. Identify and describe the key types of agricultural
machinery and their specific roles in modern	machinery used in modern farming, including
farming.	tractors, harvesters, irrigation systems, and
	specialized equipment.
	1.2. Explain the specific roles and functions of each
	type of machinery within various agricultural
	operations, such as planting, harvesting, and
	irrigation.
	1.3. Compare and contrast the uses of different
	machinery in relation to crop type, farming scale,
	and geographical location.
	1.4. Demonstrate an understanding of the technological advancements integrated into
	technological advancements integrated into agricultural machinery, such as automation and
	precision farming tools.
	1.5. Assess the impact of machinery on farm
	productivity, efficiency, and overall agricultural
	sustainability.
	1.6. Recognize the factors that influence the selection
	of agricultural machinery for specific farming
	needs.
	1.7. Discuss the environmental considerations related
	to machinery use, including energy consumption
	and emissions.
	1.8. Evaluate the benefits and limitations of various
	agricultural machinery in relation to cost- effectiveness and operational efficiency.
	1.9. Analyze current trends and innovations in
	agricultural machinery and their potential future
	roles in farming practices.
2. Demonstrate the ability to safely operate	2.1. Safely operate a range of agricultural machinery,
various agricultural machinery, including	including tractors, harvesters, and irrigation
tractors, harvesters, and irrigation systems.	systems, following industry-standard safety
	protocols and procedures.
	2.2. Conduct pre-operation checks to ensure
	machinery is in proper working condition,



	identifying any potential safety hazards or
	mechanical issues. 2.3. Demonstrate the correct use of personal
	protective equipment (PPE) while operating
	machinery to minimize risks of injury. 2.4. Operate machinery with awareness of
	environmental conditions, such as terrain,
	weather, and crop types, to optimize performance
	and safety. 2.5. Maintain proper control and maneuvering
	techniques while operating machinery, ensuring efficient and safe movement within agricultural settings.
	2.6. Adhere to operational guidelines for specific machinery, including speed, load limits, and
	appropriate field practices. 2.7. Respond appropriately to emergency situations or
	machinery malfunctions, following established
	procedures to minimize damage and ensure
	safety. 2.8. Demonstrate effective communication with other
	team members while operating machinery,
	ensuring coordinated and safe work practices. 2.9. Document and report any safety concerns or
	equipment issues encountered during operation
	to appropriate personnel for further assessment or action.
	or action.
3. Apply operational techniques to maximize	3.1. Implement appropriate operational techniques to
machinery efficiency and reduce wear and tear.	optimize the efficiency of agricultural machinery, ensuring maximum output with minimal fuel consumption.
	3.2. Adjust machinery settings, including speed and
	load, according to manufacturer specifications and operational requirements to enhance
	performance.
	3.3. Apply best practices for proper gear use and
	handling to reduce strain on machinery components and extend their lifespan.
	3.4. Conduct routine maintenance checks and
	lubricate moving parts regularly to prevent
	premature wear and tear. 3.5. Monitor and evaluate machinery performance
	continuously, making necessary adjustments to
	ensure peak operational efficiency. 3.6. Utilize data from machinery performance
	3.6. Utilize data from machinery performance



	systems, where applicable, to inform decisions on operational adjustments and improvements. 3.7. Operate machinery in a manner that minimizes unnecessary strain, such as avoiding overloading or abrupt movements that could cause damage. 3.8. Ensure proper storage and transportation of machinery to prevent environmental factors, such as dust or moisture, from affecting its condition. 3.9. Follow a structured operational schedule to prevent extended periods of inactivity or overuse that may contribute to wear and tear.
4. Identify and troubleshoot basic issues in machinery operation to ensure optimal performance.	 4.1. Recognize common operational issues in agricultural machinery, such as engine problems, hydraulic malfunctions, and electrical faults. 4.2. Use diagnostic tools and techniques to identify the root causes of machinery issues, ensuring accurate problem identification. 4.3. Assess machinery performance through visual inspections and operational testing to detect any irregularities or inefficiencies. 4.4. Apply appropriate troubleshooting procedures to resolve basic mechanical, electrical, and operational problems in machinery. 4.5. Refer to manufacturer manuals and technical documentation to guide troubleshooting processes and ensure compliance with safety standards. 4.6. Communicate identified issues clearly and effectively to relevant personnel, ensuring timely resolution and minimal operational downtime. 4.7. Implement corrective actions to restore machinery to optimal performance, including minor repairs or adjustments. 4.8. Monitor the outcomes of troubleshooting actions to ensure the effectiveness of repairs and prevent reoccurrence of similar issues. 4.9. Maintain records of troubleshooting actions, repairs, and parts replacement for future reference and ongoing machine maintenance.



AGE0005-2: Maintenance and Repair of Agricultural Equipment

The aim of this study unit is to equip learners with the skills and knowledge required to perform routine maintenance and repairs on agricultural machinery, ensuring long-term reliability and optimal performance. Students will learn how to diagnose mechanical issues effectively and apply appropriate repair techniques using industry-standard tools and diagnostic equipment. The unit emphasizes the importance of preventative maintenance practices to minimize the risk of costly breakdowns and extend the lifespan of agricultural equipment, thereby supporting efficient farming operations.

1. Perform routine maintenance tasks on agricultural machinery to ensure long-term reliability. 1.2. 1.3. 1.4. 1.5. 1.6. 1.7. 1.8. 1.9.	ment Criteria:
2. Diagnose mechanical issues in agricultural 2.1.	conduct regular inspections of agricultural rachinery to identify signs of wear, damage, or otential issues before they escalate. Itean and lubricate key machinery components, uch as engines, belts, and hydraulic systems, to insure smooth operation and prevent premature rear. Iteal epilote or repair worn-out parts, including filters, elts, and spark plugs, following manufacturer uidelines to maintain machine efficiency. In the heck and adjust fluid levels (e.g., oil, coolant, ydraulic fluid) regularly to ensure optimal machine performance and prevent overheating or rechanical failure. The est machinery functions to ensure all systems, uch as steering, braking, and power transmission, are operating correctly. The ghten bolts, nuts, and fasteners regularly to revent parts from loosening during operation and reduce the risk of malfunctions.
	pachine hours of operation, ensuring tasks are empleted in a timely manner. Italiantain accurate records of all routine paintenance tasks performed, including parts eplaced and any issues detected or resolved. Insure all maintenance activities are carried out a accordance with health, safety, and invironmental regulations to protect both pachinery and operators.
methods.	onduct thorough inspections of agricultural quipment to identify visible and hidden nechanical issues, including wear, leaks, and conormal sounds. se diagnostic tools, such as multimeters, ressure gauges, and engine analyzers, to assess



	 hydraulics, and electrical systems. 2.3. Analyze equipment performance data and error codes to pinpoint mechanical failures or inefficiencies. 2.4. Break down complex mechanical issues into manageable components to identify the exact cause of the malfunction. 2.5. Apply appropriate repair techniques, such as replacing damaged parts, recalibrating systems, or adjusting components, following manufacturer specifications and industry best practices. 2.6. Select and use the proper tools and replacement parts to ensure repairs restore the equipment to its optimal condition and performance. 2.7. Test repaired equipment to confirm that all mechanical systems are functioning correctly and safely. 2.8. Document the repair process, including the diagnosis, methods applied, and any parts
	replaced, for future reference and record-keeping. 2.9. Adhere to safety protocols during all repair activities to prevent accidents and ensure compliance with workplace health and safety standards.
3. Use tools and diagnostic equipment effectively to perform repairs on common agricultural machines.	 3.1. Select and use appropriate tools and diagnostic equipment based on the type of repair required, ensuring compatibility with agricultural machinery. 3.2. Demonstrate proper handling and operation of diagnostic equipment, such as multimeters, pressure testers, and diagnostic software, to assess machinery performance. 3.3. Calibrate and maintain diagnostic tools to ensure accurate measurements and readings during the repair process. 3.4. Follow safety guidelines when using tools and diagnostic equipment to minimize the risk of injury and damage to machinery. 3.5. Perform routine checks and maintenance on tools and diagnostic equipment to ensure they are in optimal working condition for efficient repairs. 3.6. Utilize diagnostic equipment to accurately identify issues in electrical, mechanical, or hydraulic



	systems of agricultural machinery. 3.7. Apply the correct repair methods based on diagnostic results, using specialized tools to replace or adjust components as necessary. 3.8. Document the use of tools and diagnostic equipment, including the results obtained, actions taken, and any parts replaced during the repair process. 3.9. Adhere to manufacturer guidelines and industry standards when using tools and diagnostic equipment to ensure repairs are carried out to the highest quality.
4. Understand and implement preventative measures to avoid costly breakdowns and extend the lifespan of equipment.	 4.1. Identify common causes of machinery breakdowns and implement strategies to prevent these issues through proactive maintenance and care. 4.2. Develop and follow a scheduled maintenance plan, including regular checks, lubrication, and part replacements, based on the manufacturer's recommendations. 4.3. Monitor machinery performance continuously to detect early signs of wear or malfunction and take corrective action before failures occur. 4.4. Implement proper storage procedures for machinery during off-season periods to prevent environmental damage such as rust or corrosion. 4.5. Use high-quality replacement parts and materials to ensure optimal machine performance and minimize the risk of premature failure. 4.6. Educate and train operators on the correct use of machinery to avoid misuse or overloading, which can lead to unnecessary wear and breakdowns. 4.7. Keep machinery clean and free from debris, dust, and other contaminants that could cause damage to key components. 4.8. Apply environmental best practices to reduce strain on machinery, such as avoiding excessive idling or operating at inappropriate speeds or loads. 4.9. Keep detailed records of preventative maintenance activities, including tasks completed, parts replaced, and any potential issues noted for future reference.



AGE0005-3: Health, Safety, and Environmental Practices in Agriculture Engineering

The aim of this study unit is to provide learners with a thorough understanding of health, safety, and environmental practices in the field of agricultural engineering. Students will be trained to follow established safety protocols when operating machinery and working in agricultural environments. The unit will also focus on conducting risk assessments to identify and mitigate potential hazards, ensuring a safe workplace.

Learning Outcome:	Assessment Criteria:
1. Follow safety protocols when operating	1.1. Adhere to all relevant safety regulations and
machinery and working in agricultural	guidelines when operating agricultural
environments.	machinery to ensure personal and
	environmental safety.
	1.2. Wear the appropriate personal protective
	equipment (PPE), such as helmets, gloves, eye
	protection, and hearing protection, when
	operating machinery.
	1.3. Perform a pre-operation safety check on
	machinery to identify any potential hazards,
	such as fluid leaks, loose parts, or
	malfunctioning components.
	1.4. Ensure that all safety features and emergency
	shutdown mechanisms on machinery are
	functioning properly before use.
	1.5. Follow safe operating procedures, including
	correct starting, stopping, and operating
	techniques, to prevent accidents or
	machinery damage. 1.6. Maintain clear communication with other
	workers when operating machinery to ensure
	coordinated and safe movement in shared
	spaces.
	1.7. Be aware of and respond to environmental
	factors, such as weather conditions and field
	terrain, which may affect the safe operation
	of machinery.
	1.8. Follow established procedures for dealing
	with machinery malfunctions or emergencies,
	ensuring a safe and prompt response.
	1.9. Continuously assess and adjust operational
	practices to minimize risks, ensuring a safe
	and efficient working environment.
2. Conduct risk assessments to identify and	2.1 Identify and access notantial barards in the
2. Conduct risk assessments to identify and mitigate potential hazards in the workplace.	2.1. Identify and assess potential hazards in the workplace, including mechanical, chemical,
initigate potential nazarus in the workplace.	electrical, and environmental risks.
	2.2. Conduct thorough site inspections to evaluate



processes, and worker behavior.
2.3. Analyze the likelihood and severity of identified

- 2.3. Analyze the likelihood and severity of identified hazards to prioritize them based on risk level.
- 2.4. Evaluate the effectiveness of existing safety controls and procedures in mitigating identified risks.
- 2.5. Develop and implement appropriate risk mitigation strategies, such as modifying work practices, using protective equipment, or improving safety protocols.
- 2.6. Collaborate with relevant stakeholders, such as supervisors and safety officers, to ensure comprehensive risk assessments are conducted.
- 2.7. Document all risk assessments, including identified hazards, risk evaluations, and actions taken to mitigate risks.
- 2.8. Review and update risk assessments regularly to account for changes in the workplace environment, machinery, or regulations.
- 2.9. Provide recommendations for additional safety measures, training, or equipment to minimize workplace hazards and improve safety.
- 3. Apply environmental best practices in agriculture engineering, focusing on sustainability and reducing ecological impact.
- 3.1. Implement sustainable farming techniques that minimize soil degradation, water waste, and energy consumption while optimizing agricultural production.
- 3.2. Integrate eco-friendly technologies, such as precision farming tools and renewable energy systems, to reduce the environmental impact of agricultural machinery and processes.
- 3.3. Use integrated pest management (IPM) practices to reduce the need for chemical pesticides and minimize harm to the ecosystem.
- 3.4. Apply water conservation methods, such as efficient irrigation systems and rainwater harvesting, to reduce water usage and ensure long-term sustainability.
- 3.5. Promote the use of organic fertilizers and soil amendments to maintain soil health and reduce reliance on synthetic chemicals.
- 3.6. Follow waste reduction practices, such as recycling agricultural residues and using biodegradable materials, to reduce waste and promote circular economy principles.
- 3.7. Ensure proper management of machinery



emissions by adopting low-emission technologies
and regular maintenance practices to minimize air
pollution.

- 3.8. Advocate for biodiversity conservation by implementing practices that protect local wildlife habitats and promote diverse ecosystems on farming land.
- 3.9. Stay informed about environmental regulations and guidelines and ensures compliance with local and international environmental standards and certifications.
- 4. Comply with health and safety regulations related to working with hazardous materials, machinery, and waste management.
- 4.1. Follow all relevant health and safety regulations when handling hazardous materials, ensuring proper storage, labeling, and disposal practices.
- 4.2. Wear the required personal protective equipment (PPE) when working with hazardous substances, machinery, or waste to minimize exposure and risk.
- 4.3. Ensure proper training is provided for handling, storing, and disposing of hazardous materials according to regulatory standards.
- 4.4. Conduct regular risk assessments to identify and mitigate potential hazards related to machinery, chemicals, and waste management in the workplace.
- 4.5. Follow safe operating procedures when using machinery, including ensuring all safety features are functional and emergency protocols are in place.
- 4.6. Adhere to waste management protocols by segregating, recycling, and disposing of agricultural and industrial waste in compliance with environmental and safety regulations.
- 4.7. Maintain accurate records of hazardous material handling, machine operations, and waste disposal for regulatory compliance and audit purposes.
- 4.8. Ensure that all machinery and equipment are regularly maintained and inspected to prevent malfunction or failure that could pose health and safety risks.
- 4.9. Report any health and safety incidents or nearmisses promptly to ensure timely corrective actions are taken and to prevent future occurrences.



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