



NATIONAL BOARD FOR TECHNICAL EDUCATION

PLOT B BIDA ROAD, P.M.B. 2239, KADUNA, NIGERIA

IN COLLABORATION WITH



NATIONAL OCCUPATIONAL STANDARDS (NOS)

AGRICULTURAL EQUIPMENT MECHANICS LEVELS 4 & 5

JUNE, 2026



**RENEWED HOPE
IN AGRICULTURE**

PREFACE

The development of the National Occupational Standards (NOS) for the agricultural sector marks another important milestone in Nigeria's commitment to strengthening Technical and Vocational Education and Training (TVET), promoting skills development, and improving workforce productivity. These standards have been developed to provide nationally recognized benchmarks for the knowledge, skills, and competencies required for effective performance in various agricultural occupations. The National Occupational Standards were developed through a collaborative process involving industry experts, employers, professional bodies, regulatory agencies, training institutions, development partners, and other key stakeholders. Their contributions ensured that the standards reflect current industry practices, emerging technologies, and the competency requirements of the modern agricultural sector. I wish to express my sincere appreciation to the Honourable Minister of Education for providing the policy direction that made this initiative possible. I also acknowledge the support of the Honourable Minister of Agriculture and Food Security and the Honourable Minister of Livestock Development for their commitment to advancing agricultural skills development in Nigeria. I extend my profound gratitude to the Tertiary Education Trust Fund (TETFund) for its intervention and support, which facilitated the development of these National Occupational Standards. I also appreciate the invaluable contributions of the Sector Skills Council for Agriculture (SSC4A), members of the Implementation Committee, resource persons, industry practitioners, employers, professional associations, regulatory agencies, the French Embassy in Nigeria, development partners, and all stakeholders who contributed their expertise throughout the development process. These National Occupational Standards will serve as an important reference for competency-based training, assessment, certification, apprenticeship, Recognition of Prior Learning (RPL), and workforce development within the agricultural sector. It is my expectation that all implementing institutions and industry partners will effectively utilize these standards to enhance the quality, relevance, and competitiveness of agricultural skills development in Nigeria. I commend all stakeholders for their dedication and commitment to this important national assignment and look forward to the successful implementation of these National Occupational Standards for the benefit of the agricultural sector and the nation as a whole.

Professor Idris M. Bugaje, FNSE
Chairman, Implementation Committee

EXECUTIVE SECRETARY

National Board for Technical Education (NBTE), Kaduna

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NATIONAL SKILLS QUALIFICATION (NSQ)

AGRICULTURAL EQUIPMENT MECHANICS

LEVEL 4

JUNE, 2026



GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Agricultural Equipment Mechanics** for the award of National Skills Qualifications (NSQ)/National Occupational Standards (NOS). It is aimed at producing competences necessary for Senior Foreman in **Agricultural Equipment Mechanics, NSQ Level 4**.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to produce competent Senior Foreman with knowledge, skills and attitude required to supervise in routine Agricultural Equipment Mechanics. This is focused on knowledge, practical skills, communication skills, health and safety, team work and workplace experience.

QUALIFICATION REQUIREMENTS

All Candidates must:

- a. Be at least twenty (20) years of age;
- b. Be medically fit;
- c. Be mentally fit (Mental alertness);
- d. Have achieved all the Safety and Health mandatory units in the qualification;
- e. Be a Nigerian citizen;
- f. Other nationals (International passport, residence permit);
- g. Have completed level 3;
- h. Be vetted.

QUALIFICATION OBJECTIVES

At the end of this qualification, the learner should be able to:

1. Communicate effectively and prepare technical reports within agricultural equipment maintenance workshops;
2. Demonstrate professionalism, teamwork, problem-solving, and ethical practices in agricultural equipment maintenance operations;
3. Apply occupational health, safety, and environmental management practices in compliance with relevant regulations;
4. Inspect, maintain, diagnose, and repair agricultural hydraulic systems using approved procedures and manufacturer specifications;
5. Calibrate, test, diagnose, and repair precision agricultural equipment for accurate field operations;
6. Apply quality assurance systems and maintain accurate workshop documentation and service records;

7. Diagnose mechanical, hydraulic, electrical, and electronic faults in agricultural equipment using systematic diagnostic procedures;
8. Apply digital technologies, technical documentation, and workplace procedures to improve workshop productivity and service quality;
9. Supervise routine workshop activities and support continuous improvement of maintenance operations.



NATIONAL SKILLS QUALIFICATION TABLE

MANDATORY UNITS

S/N Unit No.	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remark
1	AGR/AEM/001/L4	Workplace Communication and Reporting	3	30	90	Mandatory
2	AGR/AEM/002/L4	Teamwork and Coordination	3	30	90	Mandatory
3	AGR/AEM/003/L4	Occupational Health, Safety and Environment	3	30	90	Mandatory
4	AGR/AEM/004/L4	Preventive Maintenance	6	60	180	Mandatory
5	AGR/AEM/005/L4	Diagnosis of Agricultural Equipment Faults	6	60	180	Mandatory
6	AGR/AEM/006/L4	Hydraulic Systems Repair and Maintenance	8	80	240	Mandatory
7	AGR/AEM/007/L4	Agricultural Electrical System Repair and Maintenance	7	70	210	Mandatory
8	AGR/AEM/008/L4	Precision Agricultural Equipment	7	70	210	Mandatory
9	AGR/AEM/009/L4	Workshop Quality Assurance and Documentation	4	40	120	Mandatory
TOTAL			47	470	1410	

QUALIFICATION STRUCTURE

This qualification comprises a total of nine (9) Mandatory Units, with a credit value of 47 and 470 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in

a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.



GENERAL GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit.
Unit reference	The unique reference number given to each unit at qualification approval by NBTE.
Unit level	Denotes the level of the unit within the National Vocational Qualification framework (NSQF).
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours.
Unit aim	Provides a brief outline of the unit content.
Learning outcome	States what a learner will know, understand or be able to do, as a result of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

UNIT 001: WORKPLACE COMMUNICATION AND REPORTING**Unit Reference Number:** AGR/AEM/001/L4**NSQ Level:** 4**Credit Value:** 3**Guided Learning Hours:** 30**Practice Time:** 90

Unit Purpose: This unit is designed to equip the learners with knowledge and skills to communicate effectively, manage workplace information, prepare reports, maintain records, support team coordination and decision-making.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

Unit 001: Workplace Communication and Reporting

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Coordinate workplace communication</i>	1.1	Communicate operational instructions clearly to team members.		
	1.2	Interpret technical information accurately.		
	1.3	Relay technical information accurately.		
	1.4	Facilitate effective communication between departments and work teams.		
	1.5	Use appropriate communication channels for different workplace situations.		
	1.6	Resolve communication barriers and misunderstandings professionally		
	1.7	Maintain confidentiality of sensitive workplace information.		
LO2: <i>Prepare operational reports</i>	2.1	Compile operational data from different sources.		
	2.2	Prepare daily, weekly, and monthly activity reports.		
	2.3	Document equipment performance and maintain records accurately.		
	2.4	Prepare reports on incidents, breakdowns, and operational challenges.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page No.				
	2.5	Present accurate information to supervisors.										
	2.6	Use digital and manual reporting systems in accordance with workplace procedures.										
LO3: <i>Manage workplace documentation systems</i>	3.1	Maintain filing systems for operational records.										
	3.2	Examine the accuracy and completeness of workplace documents.										
	3.3	Maintain inventory, production, and equipment records.										
	3.4	Confirm that documentation complies with organizational requirements.										
	3.5	Retrieve records when required by authorized personnel.										
	3.6	Archive documents according to workplace procedures.										
LO 4: <i>Support team coordination and workplace meetings</i>	4.1	Participate actively in workplace meetings and briefings.										
	4.2	Communicate work schedules, targets, and priorities to team members.										
	4.3	Analyse meeting outcomes and action points.										
	4.4	Deliver constructive feedback to improve team performance.										
	4.5	Promote information flow among										

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
		team members.		
	4.6	Promote effective teamwork through professional communication		
LO 5: <i>Apply digital communication technologies</i>	5.1	Use email and other means of messaging platforms for workplace communication.		
	5.2	Communicate operational information using approved digital systems.		
	5.3	Maintain data security and confidentiality when using digital platforms.		
	5.4	Use communication technologies to support operational efficiency.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature(if sampled)			Date:	

UNIT 002: TEAMWORK AND COORDINATION**Unit Reference Number: AGR/AEM/002/L4****NSQ Level: 4****Credit Value: 3****Guided Learning Hours: 30****Practice Time: 90**

Unit Purpose: This unit is designed to equip learners with knowledge and skills to achieve shared goals more efficiently in leading and coordinating teams.

Unit Assessment Requirements / Evidence Requirements

Assessment must be carried out in a real workplace environment where Agricultural Equipment Maintenance and Repair operations are performed. Simulation should only be used where workplace assessment is impracticable and must comply with NBTE assessment guidelines.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Questions and Answers (QA);
4. Witness Testimony (WT);
5. Assignment (ASS);
6. Work Products (WP);
7. Professional Discussion (PD);
8. Recognition of Prior Learning (RPL).

Unit 002: Teamwork and Coordination

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Lead teams in agricultural equipment maintenance operations</i>	1.1	Explain the principles of effective team leadership.		
	1.2	Communicate work objectives clearly to team members.		
	1.3	Coordinate team members during maintenance and repair operations.		
	1.4	Demonstrate leadership that promotes productivity, safety and quality.		
LO 2: <i>Coordinate team activities to achieve organizational objectives</i>	2.1	Prepare daily work schedules and task allocations.		
	2.2	Monitor the availability and allocation of tools, equipment, materials, and personnel to support operational activities.		
	2.3	Monitor work progress against planned targets.		
	2.4	Maintain effective communication among all members of the work team.		
LO 3: <i>Supervise junior personnel</i>	3.1	Identify training needs of junior staff.		
	3.2	Demonstrate appropriate work procedures and promote the application of best practices in task execution.		
	3.3	Coach team members during maintenance and repair activities.		
	3.4	Monitor performance of junior personnel.		
	3.5	Provide constructive feedback for performance improvement.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 4: <i>Evaluate team performance and implement continuous improvement strategies</i>	4.1	Assess team performance against organizational targets.									
	4.2	Gather performance information from team members to monitor work progress and outcomes.									
	4.3	Identify strengths and areas requiring improvement.									
	4.4	Identify corrective actions for improved productivity.									
	4.5	Support innovation and continuous improvement within the team.									
	4.6	Prepare simple team performance reports.									
	4.7	Participate in management review meetings when required.									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

UNIT 003: OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENT

Unit Reference Number: AGR/AEM/003/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 90

Unit Purpose: This unit is designed to equip learners with knowledge and skills to develop, manage, evaluate and continuously improve occupational health and safety, ensure regulatory compliance, and provide leadership in workplace safety management.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

Unit 003: Occupational Health, Safety and Environment

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Manage occupational health and safety systems</i>	1.1	Develop workplace health, safety plans and procedures.		
	1.2	Establish systems for hazard identification and risk management.		
	1.3	Implement safety performance indicators and monitoring mechanisms to improve workplace safety.		
	1.4	Integrate health and safety requirements into operational activities.		
	1.5	Adopt safety policies in line with organizational and regulatory requirements.		
	1.6	Use resources for health and safety implementation.		
LO 2: <i>Implement risk management procedures in accordance with organizational requirements.</i>	2.1	Identify comprehensive workplace risk assessments.		
	2.2	Evaluate the effectiveness of risk control measures.		
	2.3	Carryout compliance audits against applicable regulations and standards.		
	2.4	Identify improvements to workplace safety systems.		
	2.5	Manage corrective and preventive action programs.		
	2.6	Maintain compliance with statutory health and safety requirements.		
LO 3: <i>Manage emergency preparedness and</i>	3.1	Implement emergency preparedness and response plans.		
	3.2	Carryout emergency drills and		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
<i>incident response</i>		simulation exercises.		
	3.3	Carryout investigations of major incidents and accidents.		
	3.4	Analyse emergency response performance.		
	3.5	Identify improvements for emergency incidence response		
	3.6	Communicate with relevant authorities promptly and accurately in response to emergency situations.		
	3.7	Monitor implementation of lessons learned from incidents and drills.		
LO 4: <i>Provide leadership in occupational health and safety</i>	4.1	Promote a positive safety culture by following and encouraging safe work practices.		
	4.2	Provide guidance to supervisors and workers on occupational health and safety practices.		
	4.3	Organize safety committee meetings and consultations.		
	4.4	Monitor workplace safety performance data to identify safety issues and trends.		
	4.5	Implement workplace safety improvement programmes in accordance with organisational procedures.		
	4.6	Submit workplace health and safety performance reports in accordance with organisational procedures.		
LO 5: <i>Manage Occupational Health and Safety Training Programs</i>	5.1	Identify workplace health and safety training needs in accordance with organisational procedures.		
	5.2	Support in preparing occupational health and safety training plans in		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
		accordance with organisational procedures.										
	5.3	Support in delivery of safety training programs.										
	5.4	Report feedback on the effectiveness of occupational health and safety training.										
	5.5	Maintain occupational health and safety training records.										
	5.6	Identify measures to improve workplace safety competence in accordance with organisational procedures.										
Learners Signature:						Date:						
Assessors Signature:						Date:						
IQA Signature (if sampled)						Date:						
EQA Signature (if sampled)						Date:						

UNIT 004: PREVENTIVE MAINTENANCE**Unit Reference Number: AGR/AEM/004/L4****NSQ Level: 4****Credit Value: 6****Guided Learning Hours: 60****Practice Time: 180**

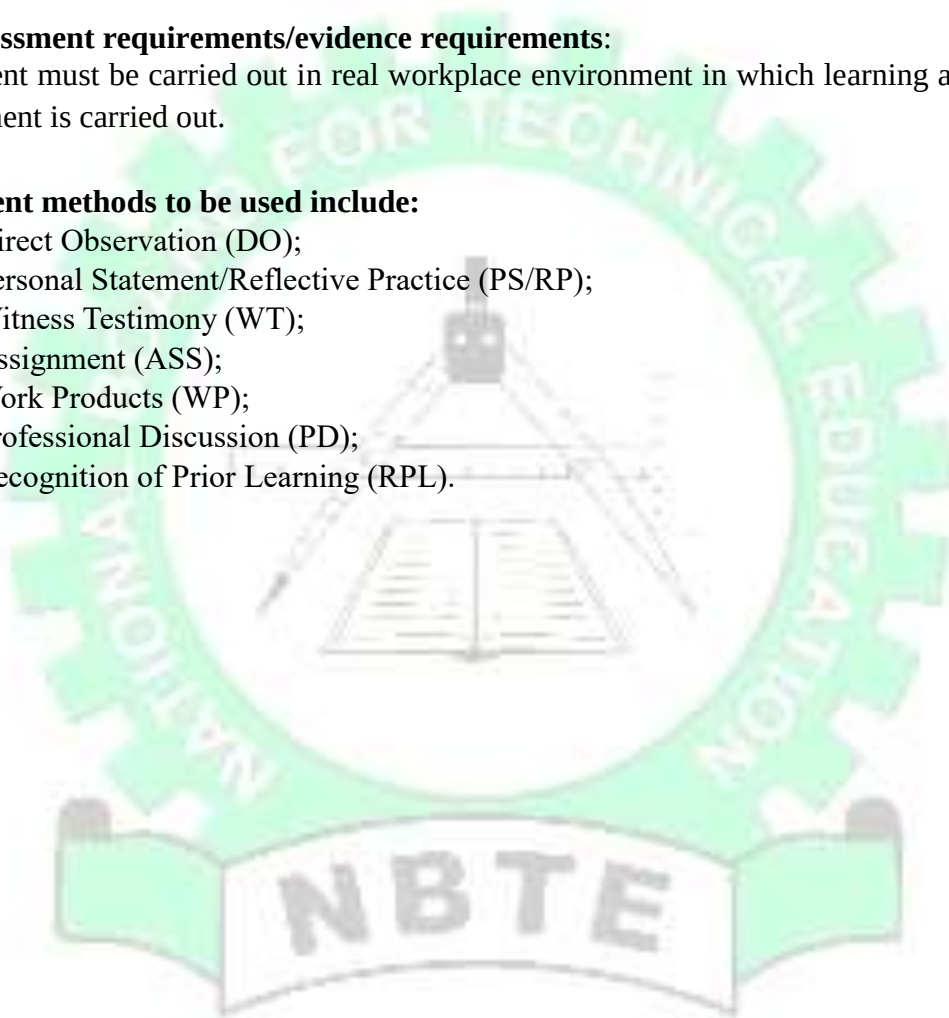
Unit Purpose: This course is design to equip learners with knowledge and skills to carry out preventive maintenance, basic testing and minor repairs of agricultural hydraulic systems.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).



Unit 004: Preventive Maintenance

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Plan and prepare for preventive maintenance of agricultural equipment.</i>	1.1	Interpret manufacturer's maintenance schedules and workplace procedures to plan preventive maintenance activities.		
	1.2	Select the appropriate tools, equipment, spare parts, lubricants, and consumables required for preventive maintenance.		
	1.3	Apply occupational health, safety, and environmental (OHSE) requirements throughout preventive maintenance activities.		
	1.4	Isolate all energy sources and apply lock-out/tag-out (LOTO) procedures in accordance with workplace safety requirements.		
	1.5	Review equipment maintenance records and service history before commencing preventive maintenance.		
	1.6	Use appropriate personal protective equipment (PPE) in accordance with workplace safety requirements.		
LO2: <i>Perform preventive maintenance on agricultural equipment and systems.</i>	2.1	Inspect engine, transmission, hydraulic, electrical, steering, braking, and cooling systems for wear, damage, leakage for proper operation.		
	2.2	Carry out lubrication on equipment components in accordance with manufacturer maintenance		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
		schedules and specifications.		
	2.3	Replace filters, fluids, belts, hoses, seals, and other scheduled service components in accordance with manufacturer's specification.		
	2.4	Adjust mechanical and hydraulic systems to manufacturer's specification using appropriate tools and procedures.		
	2.5	Inspect the condition of the battery, tyre pressure and oil levels using appropriate testing equipment.		
	2.6	Verify the condition of the battery, tyre pressure and oil levels using appropriate testing equipment.		
	2.7	Clean agricultural equipment to remove dirt, debris, and contaminants to maintain safe and efficient operation.		
LO3: <i>Verify equipment performance after preventive maintenance.</i>	3.1	Inspect completed preventive maintenance work to ensure compliance with manufacturer's specification and workplace procedures.		
	3.2	Perform functional tests to verify the proper operation and performance of the serviced equipment and systems.		
	3.3	Identify abnormal operating conditions and recommend appropriate corrective measures where required.		
	3.4	Verify that all guards, shields, and		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
		safety devices are correctly installed and functioning effectively.		
	3.5	Return the equipment to operational service in accordance with workplace procedures.		
	3.6	Dispose used oils, filters, worn components, and other waste materials in accordance with environmental and workplace requirements.		
LO4: <i>Maintain preventive maintenance records and recommend follow-up actions.</i>	4.1	Maintain preventive maintenance activities in accordance with workplace documentation procedures.		
	4.2	Document the condition of the equipment, inspection findings, and components serviced or replaced.		
	4.3	Update maintenance logs and service records using manual or digital recording systems.		
	4.4	Report faults requiring corrective maintenance to the appropriate supervisor or maintenance personnel.		
	4.5	Recommend future preventive maintenance actions based on equipment condition and manufacturer's maintenance schedules.		
	4.6	Verify that all maintenance records and reports comply with organizational documentation requirements.		
Learners Signature:			Date:	

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC) (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:				
		The learner can:		
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



Unit 005: Diagnosis of Agricultural Equipment Faults.

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type		Evidence Ref. Page No.
LO 1: <i>Apply pre-diagnoses measures of agricultural equipment.</i>	1.1	Interpret work orders and equipment history logbook.			
	1.2	Inspect the PPE according to Factories Act CAP F1.			
	1.3	Select the hand tools for the purpose of diagnosed faults.			
	1.4	Interpret the operational manuals, service manual, and parts catalogue.			
LO 2: <i>Carry out preliminary inspection on agricultural equipment.</i>	2.1	Carry out visual inspection to check for leaks, cracks, wear and unaligned machine parts.			
	2.2	Check the serviceable items such as engine oil level, hydraulic level, coolant, battery voltage and tyre pressure.			
	2.3	Operate the equipment to confirm and verify the diagnosis faults.			
	2.4	Identify the faults symptoms using smoke colour, abnormal noise, excessive vibration heating.			
LO 3: <i>Carry out systematic diagnostic procedures.</i>	3.1	Carry out 6-step diagnostic method: i. Verify the complain ii. Gather information iii. Identify the root cause iv. Carry out Repairs v. Verify the repair vi. Document the work.			
	3.2	Identify testing for diagnosis of			

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type				Evidence Ref. Page No.			
		agricultural machine faults.								
	3.3	Evaluate the damage level of the diagnosed agricultural machine.								
	3.4	Compare all test results with manufacturer specifications and make accurate diagnosis.								
LO 4: <i>Troubleshoot faults.</i>	4.1	Isolate fault according to the system and components e.g. Hydraulic System fault – pump – hose leakage.								
	4.2	Carry out classification of fault type on mechanical, electrical or other systems.								
	4.3	Determine the root cause and system failure.								
	4.4	Compile diagnosis report accurately using date, equipment type/name, symptom, tests, readings and advice corrective actions (repair, service or refers).								
Learners Signature:			Date:							
Assessors Signature:			Date:							
IQA Signature (if sampled)			Date:							
EQA Signature (if sampled)			Date:							

UNIT 006: HYDRAULIC SYSTEMS REPAIR AND MAINTENANCE

Unit Reference Number: AGR/AEM/006/L4

NSQ Level: 4

Credit Value: 8

Guided Learning Hours: 80

Practice Time: 240

Unit Purpose: This course is designed to equip learners with knowledge and skills to inspect, maintain, and identify common faults in basic agricultural hydraulic systems.

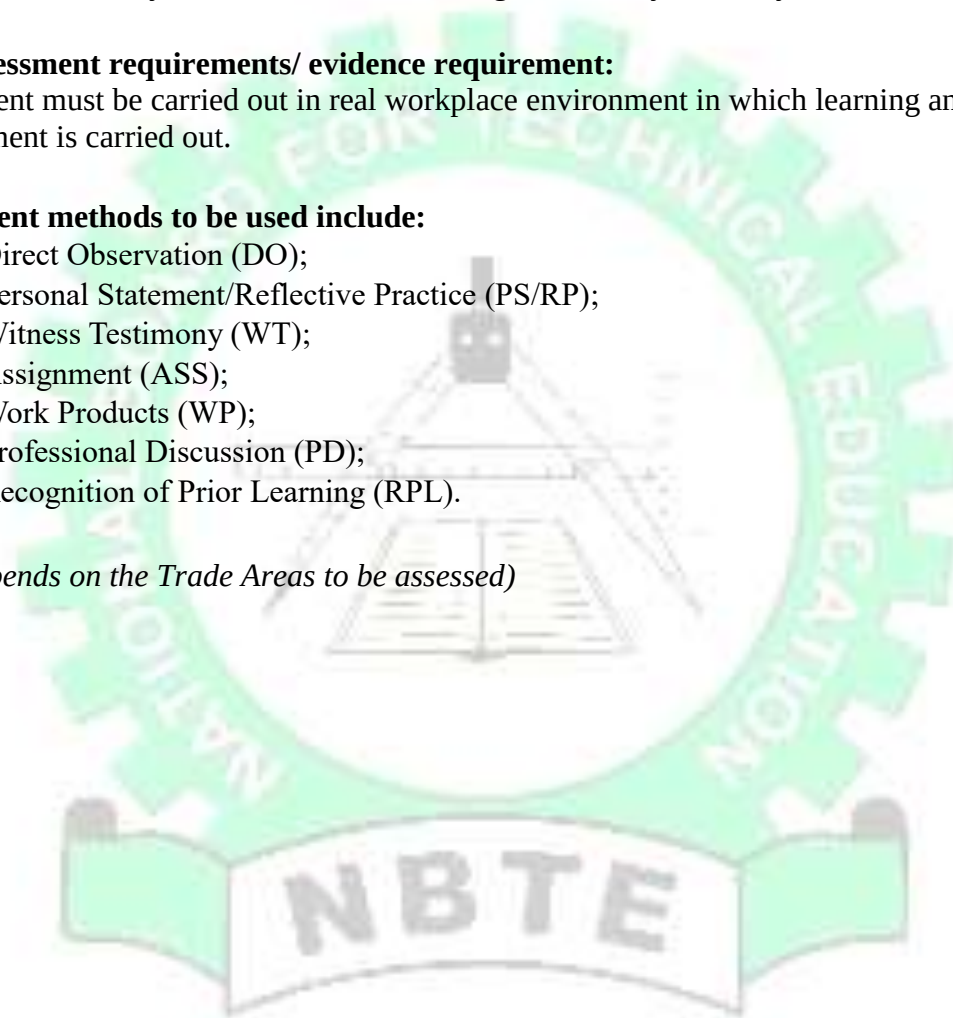
Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)



Unit 006: Hydraulic Systems Repair and Maintenance

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Identify the basics of hydraulic system safety</i>	1.1	Identify hazards associated with high-pressure hydraulic systems and their potential risks.		
	1.2	Explain the hydraulic safety hazards in the tractor transmission parts.		
	1.3	Explain the principles and importance of using Personal Protective Equipment (PPE) when diagnosing and repairing hydraulic system faults.		
LO 2: <i>Demonstrate how the simple working principle of hydraulic systems works</i>	2.1	Identify the machine parts of hydraulic system.		
	2.2	Demonstrate the working principle of each identified hydraulic system component.		
	2.3	Identify the hydraulic system lines e.g. tank or reservoir, pump, filter, hoses, cylinder and plunger.		
	2.4	Handle tools for the hydraulic system services.		
LO3: <i>Maintain hydraulic operating system.</i>	3.1	Identify the oil level with hydraulic level dipstick and sight glass for correct level.		
	3.2	Identify the types of hoses and fittings in a hydraulic system.		
	3.3	Inspect hydraulic systems for leaks.		
	3.4	Identify their possible causes.		
	3.5	Identify the ISO oil grade for topping of low-level hydraulics.		
	3.6	Identify common hydraulic system faults, including weak lift,		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		low oil level, and air in the system.		
LO 4: <i>Record keeping in hydraulic system maintenance</i>	4.1	Maintain hydraulic fault and daily maintenance logs in accordance with workplace procedures.		
	4.2	Identify hydraulic oil types, oil quality, and filter part numbers in accordance with manufacturer specifications.		
	4.3	Identify correct seal part number for replacement in accordance with manufacturer specifications.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 007: AGRICULTURAL ELECTRICAL SYSTEM REPAIR AND MAINTENANCE

Unit Reference Number: AGR/AEM/007/L4

NSQ Level: 4

Credit Value: 7

Guided Learning Hours: 70

Practice Time: 210

Unit Purpose: This course is designed to equip learners with knowledge and skills in troubleshooting, repair and maintenance of agricultural electrical system.

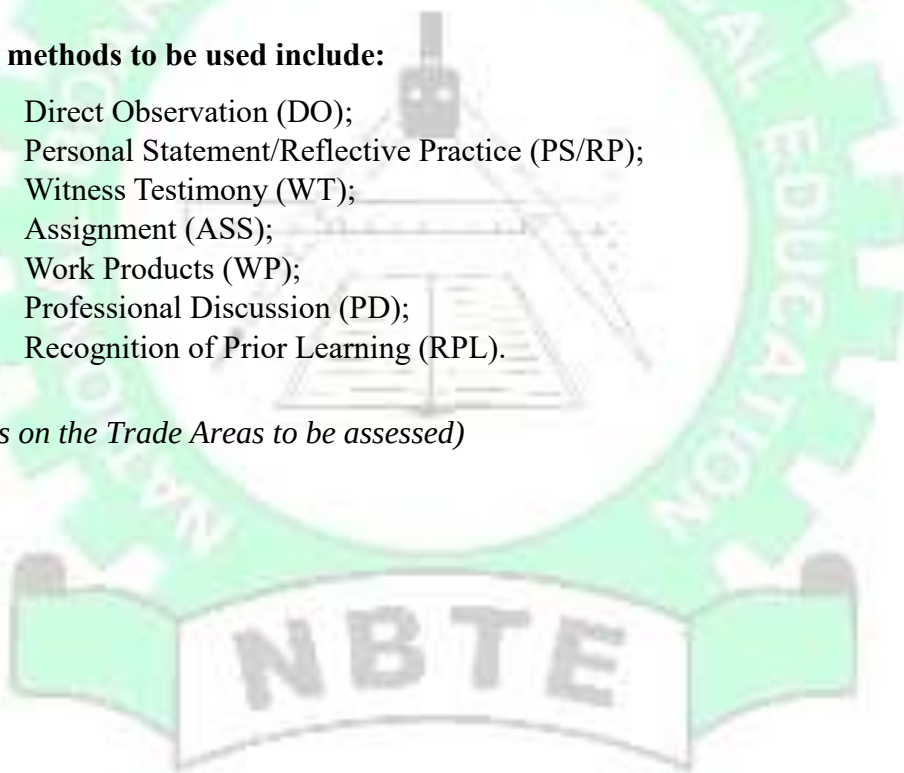
Unit assessment requirements/evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)



UNIT 007: AGRICULTURAL ELECTRICAL SYSTEM REPAIR AND MAINTENANCE

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Analyze electrical technical layout.</i>	1.1	Identify electrical symbols		
	1.2	Interpret electrical symbols		
	1.3	Carry out pre-testing calculations		
LO2: <i>Carry out fixing of electronic systems.</i>	2.1	Carry out signal sampling using diagnostic scanner to machine data link following standard protocol.		
	2.2	Carry out tracing sub circuit from the fuse box to the ultimate load.		
	2.3	Carry out fault isolation		
	2.4	Carry out expected voltage tests at specific circuit point before loading.		
LO3: <i>Execute precise repair procedures on heavy machinery</i>	3.1	Carry out rebuilding of starter solenoid.		
	3.2	Carry out testing of battery health in accordance to specification.		
	3.3	Determine whether a charging failure is caused by a mechanical or electrical fault.		
	3.4	Carry out test for zero voltage drop across the connection		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 008: PRECISION AGRICULTURAL EQUIPMENT

Unit Reference Number: AGR/AEM/008/L4

NSQ Level: 4

Credit Value: 7

Guided Learning Hours: 70

Practice Time: 210

Unit Purpose: This unit is designed to equip learners with the knowledge and skills to calibrate, repair, test, and maintain precision agricultural equipment for accurate, efficient, and safe field operations.

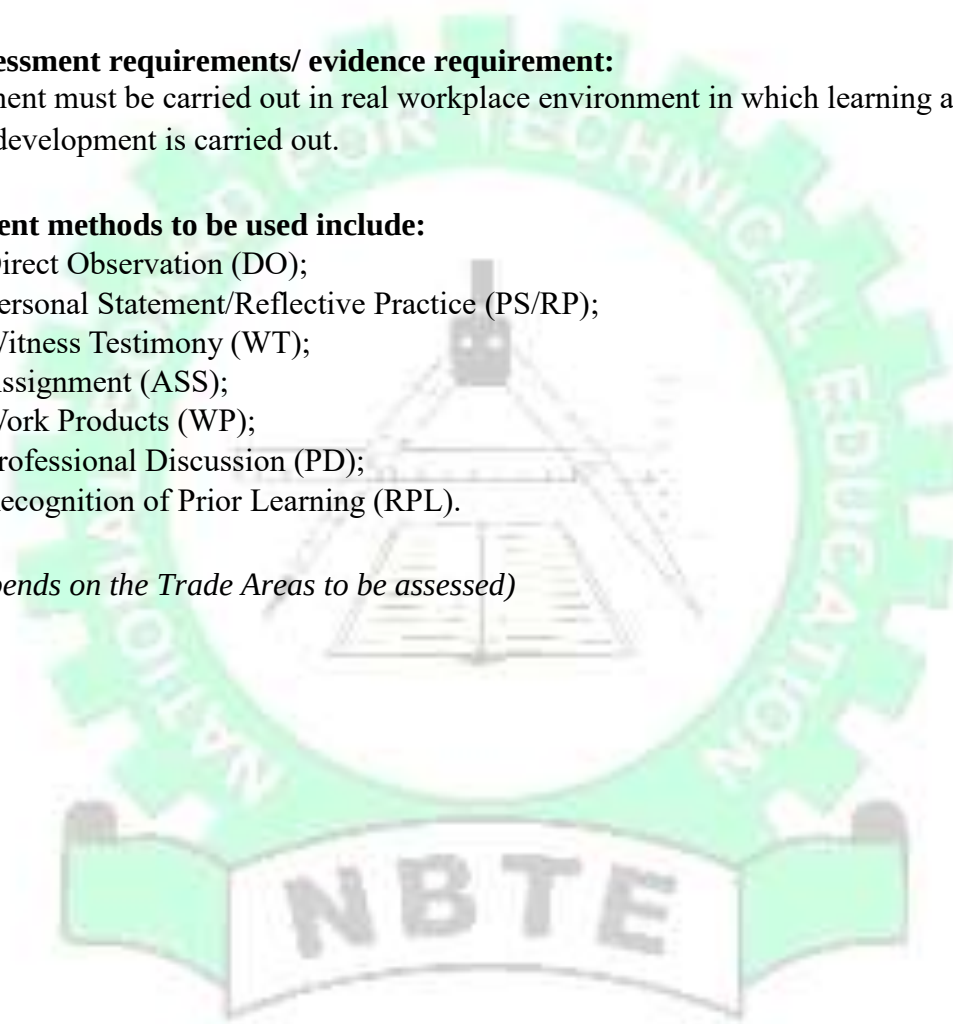
Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)



Unit 008: Precision Agricultural Equipment

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Identify precision agricultural equipment and their operating principles.</i>	1.1	Identify common precision agricultural equipment, e.g. i. GPS guidance, ii. Variable-rate applicators, iii. Yield monitors, iv. Sensors.			
	1.2	Demonstrate the operating system of GNSS, GIS, remote sensing, and FMIS platforms.			
	1.3	Identify key components, e.g. control units, sensors, actuators, communication modules.			
	1.4	Interpret basic data outputs from farm management information systems (FMIS).			
	1.5	Use correct PPE and safety precautions when handling equipment.			
LO 2: <i>Operate GPS-guided, variable-rate, and sensor-based equipment.</i>	2.1	Carry out pre-calibration checks per manufacturer's manual.			
	2.2	Observe GPS guidance: pass-to-pass accuracy, signal correction, auto-steer settings.			
	2.3	Operate variable-rate equipment: seed meters, sprayer and spreader controllers.			
	2.4	Operate yield monitors and sensors for field/crop conditions.			
	2.5	Process calibration results and deviations in service logs.			
LO 3:	3.1	Use diagnostic tools and error codes to identify equipment faults.			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
<i>Diagnose faults in precision agricultural equipment.</i>	3.2	Diagnose network (ISOBUS/CAN), sensor, and GPS signal faults.			
	3.3	Assess diagnostics, parts used, outcomes in job cards.			
LO 4: <i>Repair faults in precision agricultural equipment</i>	4.1	Repair faults: replace sensors, control modules, wiring, actuators.			
	4.2	Test repaired systems against manufacturer specifications.			
	4.3	Record parts used, outcomes in job cards.			
Learners Signature:			Date:		
Assessors Signature:			Date:		
IQA Signature (if sampled)			Date:		
EQA Signature (if sampled)			Date:		

UNIT 009: WORKSHOP QUALITY ASSURANCE AND DOCUMENTATION

Unit Reference Number: AGR/AEM/009/L4

NSQ Level: 4

Credit Value: 4

Guided Learning Hours: 40

Practice Time: 120

Unit Purpose: This unit is designed to equip learners with knowledge and skills required to implement, document and maintain quality assurance systems.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 009: Workshop Quality Assurance and Documentation

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Apply quality assurance principles in the workshop.</i>	1.1	Distinguish quality assurance (QA) from quality control (QC).		
	1.2	Identify relevant quality standards and regulatory requirements (e.g. SON, ISO).		
	1.3	Apply QA checks: pre-service, in-process, and post-service inspection.		
	1.4	Identify non-conformances and apply corrective actions.		
	1.5	Demonstrate safe work practices and environmental compliance.		
LO 2: <i>Apply standard operating procedures and inspection protocols.</i>	2.1	Adopt SOPs for repair, maintenance, and calibration tasks.		
	2.2	Implement SOPs for inspection, repair sequencing, and safety compliance.		
	2.3	Use checklists for receiving, in-process, and final checks.		
	2.4	Monitor SOP compliance through audits and corrective action.		
LO 3: <i>Manage documentation and continuous improvement.</i>	3.1	Maintain job cards, service histories, and inspection records.		
	3.2	Document accurate and audit-ready filed records		
	3.3	Analyse performance data: turnaround time, repeat repairs, wastage.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type		Evidence Ref. Page No.
	3.4	Use improvement tools, e.g. root cause analysis.			
	3.5	Present findings and recommendations to workshop manager.			
Learners Signature:			Date:		
Assessors Signature:			Date:		
IQA Signature (if sampled)			Date:		
EQA Signature (if sampled)			Date:		



NATIONAL SKILLS QUALIFICATION (NSQ)



GENERAL INFORMATION

OVERVIEW

This qualification is designed for individuals who are interested in pursuing a career in **Agricultural Equipment Mechanics** for the award of National Skills Qualifications (NSQ)/National occupational Standards (NOS). It is aimed at producing competencies necessary to manage **Agricultural Equipment Mechanics, NSQ Level 5**.

This qualification is subject to review as and when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to produce competent Assistant Manager with knowledge, skills and attitude required to manage in routine Agricultural Equipment Mechanics. This is focused on knowledge, practical skills, communication skills, health and safety, team work and workplace experience.

QUALIFICATION REQUIREMENTS

All Candidates must:

- a. Be at least twenty-two (22) years of age;
- b. Be medically fit ;
- c. Be mentally fit (Mental alertness);
- d. Have achieved the NSQ Level 4 qualification in Agricultural Mechanics, or its equivalent;
- e. Be a Nigerian citizen;
- f. Other nationals (International passport, residence permit);
- g. Be vetted.

QUALIFICATION OBJECTIVES

To achieve this qualification, the learner should have the following competencies:

1. Lead and manage workplace communication, technical reporting, and stakeholder engagement in agricultural equipment maintenance operations.
2. Supervise, mentor, and develop teams to improve productivity, quality, and workplace performance.
3. Develop, implement, and evaluate occupational health, safety, and environmental management systems.
4. Diagnose, test, repair, and evaluate advanced hydraulic systems used in modern agricultural machinery.
5. Plan, coordinate, inspect, and commission agricultural equipment in accordance with organizational and manufacturer requirements.
6. Integrate, configure, troubleshoot, and maintain precision agriculture technologies and automated agricultural equipment.
7. Conduct advanced troubleshooting using diagnostic software, digital tools, and electronic communication systems.

8. Apply quality management principles, technical standards, and regulatory requirements to workshop operations.
9. Manage maintenance resources, technical documentation, and operational records using digital systems.
10. Demonstrate leadership, innovation, decision-making, and continuous improvement in agricultural equipment maintenance and management.



NATIONAL SKILLS QUALIFICATION TABLE

MANDATORY UNITS

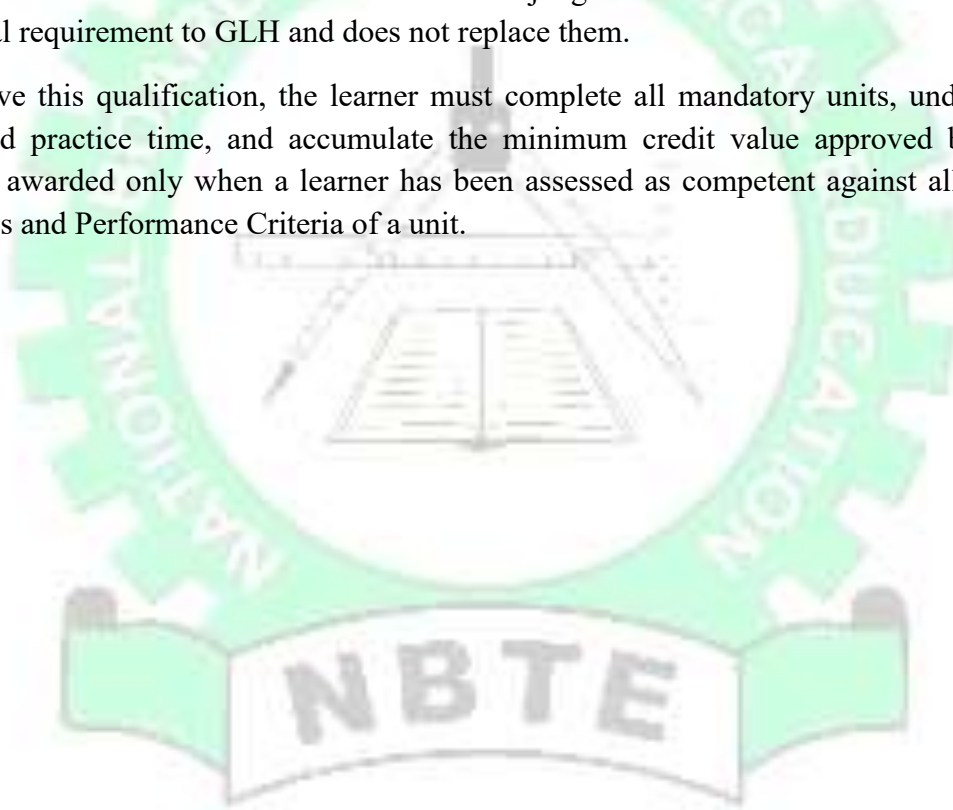
S/N Unit No.	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours	Practice Time	Remark
1	AGR/AEM/001/L5	Advanced Workplace Communication and Technical Reporting	3	30	220	Mandatory
2	AGR/AEM/002/L5	Leadership, Team Supervision and Coordination	3	30	220	Mandatory
3	AGR/AEM/003/L5	Occupational Health, Safety and Risk Management	3	30	220	Mandatory
4	AGR/AEM/004/L5	Advanced Hydraulic Systems Diagnosis, Repair and Performance Testing	8	80	260	Mandatory
5	AGR/AEM/005/L5	Equipment Procurement, Inspection and Commissioning	6	60	220	Mandatory
6	AGR/AEM/006/L5	Precision Agriculture Systems and Smart Equipment Technologies	8	80	260	Mandatory
7	AGR/AEM/007/L5	Advanced Troubleshooting of Automated and Electronic Agricultural Equipment	10	100	320	Mandatory
8	AGR/AEM/008/L5	Agricultural Machinery Performance Testing and Evaluation	8	80	260	Mandatory
9	AGR/AEM/009/L5	Digital Diagnostics, Telematics and Equipment Management Systems.	8	80	260	Mandatory
TOTAL			57	570	2240	

QUALIFICATION STRUCTURE

This qualification comprises a total of nine (9) Mandatory Units, with a credit value of 57 and 570 Guided Learning Hours (GLH) across the full qualification. One (1) credit is equivalent to ten (10) GLH. Guided Learning Hours are the time a learner spends in the classroom, workshop and laboratory of the Skills Training Centre (STC), being taught, instructed, supervised or assessed by a qualified trainer, facilitator or assessor.

In addition to the GLH, the qualification requires at least twice or thrice the GLH as practice time. Practice time is the time a learner is expected to spend applying the skills of each unit in a real workplace environment, carrying out the same tasks repeatedly until performance becomes consistent, accurate and habitual to the standard the qualification demands. It is undertaken under the guidance of a workplace supervisor, recorded in the learner's logbook and duly endorsed. Practice time is the principal setting where core assessment is conducted. It is through repeated performance in the workplace that a learner's achievement of the Learning Outcomes and Performance Criteria is judged and evidenced. Practice time is an additional requirement to GLH and does not replace them.

To achieve this qualification, the learner must complete all mandatory units, undertake the prescribed practice time, and accumulate the minimum credit value approved by NBTE. Credit is awarded only when a learner has been assessed as competent against all Learning Outcomes and Performance Criteria of a unit.



GENERAL GUIDE

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit.
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National Vocational Qualification framework NSQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

UNIT 001: ADVANCED WORKPLACE COMMUNICATION AND TECHNICAL REPORTING

Unit Reference Number: AGR/AEM/001/L5

NSQ Level: 5

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 220 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skill required to lead a technical team, reports and manage work place communication

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

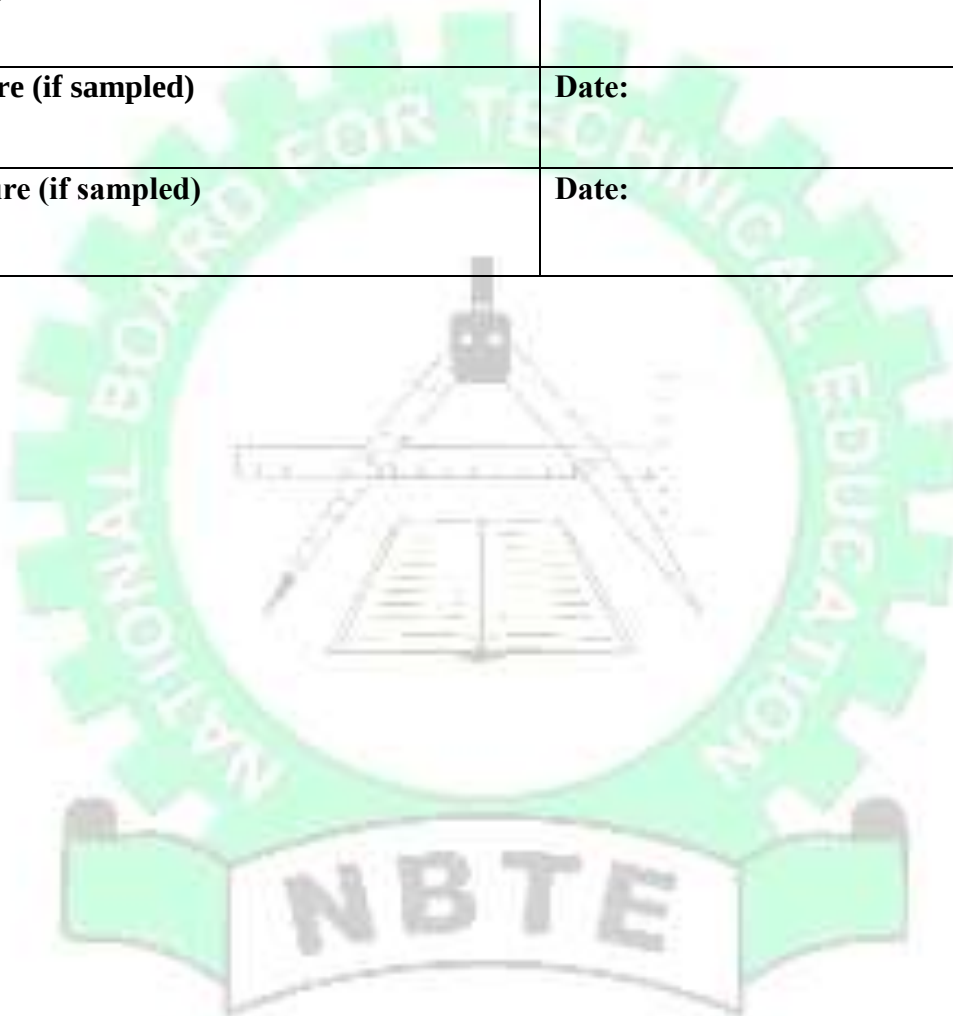
(This depends on the Trade Areas to be assessed)

UNIT 001: Advanced Workplace Communication and Technical Reporting

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Manage workplace communication systems to support organizational objectives.</i>	1.1	Establish communication channels for effective working activities.		
	1.2	Communicate technical information effectively using appropriate verbal, written, and digital communication methods.		
	1.3	Coordinate communication among team members to ensure timely completion of tasks.		
	1.4	Verify that information exchanged is accurate, complete, and clearly understood by relevant personnel.		
	1.5	Maintain confidentiality of sensitive workplace information.		
LO2: <i>Lead various teams and optimize group performance</i>	2.1	Assign clear operational roles and distinct responsibilities within multi-disciplinary teams.		
	2.2	Evaluate individual capabilities to match personnel with specific project dependencies.		
	2.3	Establish clear benchmarks for collective accountability		
	2.4	Implement structured feedback mechanisms to promote open communication, collaboration, and mutual respect.		
LO3: <i>Resolve workplace conflict and manage negotiations</i>	3.1	Facilitate structured conflict resolution sessions using professional mediation and active listening techniques.		
	3.2	Implement preventive strategies to minimize the risk of future		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
		interpersonal conflicts.		
	3.3	Apply negotiation techniques to achieve mutually acceptable agreements and consensus.		
LO4: <i>Manage technical documentation.</i>	4.1	Prepare maintenance and service reports in accordance with organizational procedures.		
	4.2	Carryout equipment inspection, repairs, and testing results accurately.		
	4.3	Update maintenance records using manual or digital documentation systems.		
	4.4	Review technical documents for accuracy and completeness before submission.		
	4.5	Archive workplace records according to organizational requirements		
LO5: <i>Coordinate effective communication with customers and stakeholders.</i>	5.1	Explain equipment faults and repair requirements using appropriate technical language to customers		
	5.2	Provide recommendations on equipment operation and preventive maintenance.		
	5.3	Respond to customer enquiries professionally and promptly		
	5.4	Resolve communication issues with customers using appropriate conflict resolution techniques.		
	5.5	Obtain customer feedback and document recommendations for		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		service improvement.		
Learners Signature:		Date:		
Assessors Signature:		Date:		
IQA Signature (if sampled)		Date:		
EQA Signature (if sampled)		Date:		



UNIT 002: LEADERSHIP, TEAM SUPERVISION AND COORDINATION

Unit Reference Number: AGR/AEM/002/L5

NSQ Level: 5

Credit Value: 3

Guided Learning Hours: 30

Practice Time: 220 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills to develop teamwork, leadership, and collaborative management competencies.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 002: Leadership, Team Supervision and Coordination

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Coordinate workshop teams to achieve organizational objectives.</i>	1.1	Demonstrate leadership responsibilities within the team structure.		
	1.2	Allocate tasks based on competency, capacity and urgency.		
	1.3	Coordinate repair, maintenance, and inspection workflow.		
	1.4	Communicate team goals and expectations clearly.		
	1.5	Apply codes of conduct and professional ethics in leading the team.		
LO 2: <i>Manage team performance and resolve conflict</i>	2.1	Monitor performance against targets and quality standards.		
	2.2	Provide constructive, evidence-based feedback to improve team members performance.		
	2.3	Identify sources of conflict and apply resolution strategies.		
	2.4	Escalate unresolved conflicts to the appropriate authority in accordance with organizational procedures.		
	2.5	Promote mutual respect and shared accountability in the team.		
LO 3: <i>Mentor junior staff and support team development</i>	3.1	Assess the development needs of junior technicians to support competency improvement.		
	3.2	Provide on-the-job mentoring to enhance technical skills, safety practices, and professional conduct.		
	3.3	Document mentoring activities and		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page No.				
		learner progress.										
	3.4	Evaluate team structure and recommend improvements to enhance performance and efficiency.										
	3.5	Monitor team performance against established targets and quality standards.										
Learners Signature:			Date:									
Assessors Signature:			Date:									
IQA Signature (if sampled)			Date:									
EQA Signature (if sampled)			Date:									

UNIT 003: OCCUPATIONAL HEALTH, SAFETY AND RISK MANAGEMENT

Unit Reference Number: AGR/AEM/003/L5

NSQ Level: 5

Credit Value: 2

Guided Learning Hours: 20

Practice Time: 220 hours

Unit Purpose: This unit is designed to equip learners with knowledge and skills to manage and continuously improve occupational health and safety systems, ensure regulatory compliance, and provide leadership in workplace safety management.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 003: Occupational Health, Safety and Risk Management

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Monitor occupational health and safety management.</i>	1.1	Develop workplace health and safety plans and procedures in accordance with organizational and regulatory requirements.		
	1.2	Establish systems for hazard identification and risk management.		
	1.3	Develop safety performance indicators and monitoring mechanisms.		
	1.4	Integrate health and safety requirements into operational activities.		
	1.5	Implement safety policies in line with organizational and regulatory requirements.		
	1.6	Allocate resources for health and safety implementation.		
LO 2: <i>Lead risk management and compliance activities</i>	2.1	Lead comprehensive workplace risk assessments.		
	2.2	Evaluate the effectiveness of risk control measures.		
	2.3	Conduct compliance audits against applicable regulations and standards.		
	2.4	Recommend improvements to workplace safety systems.		
	2.5	Manage corrective and preventive action programs.		
	2.6	Enforce compliance with statutory health and safety requirements.		
LO 3: <i>Manage emergency</i>	3.1	Develop emergency preparedness and response plans.		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
<i>preparedness and incident response</i>	3.2	Coordinate emergency drills and simulation exercises.		
	3.3	Investigate major incidents and accidents.		
	3.4	Analyse emergency response performance and identify improvements.		
	3.5	Coordinate communication with relevant authorities during emergencies in accordance with established procedures.		
	3.6	Ensure implementation of lessons learned from incidents and drills.		
LO 4: <i>Provide leadership in occupational health and safety</i>	4.1	Promote a positive safety culture through effective leadership and employee engagement.		
	4.2	Provide mentoring and guidance to supervisors and workers on occupational health and safety practices.		
	4.3	Facilitate safety committee meetings and consultations.		
	4.4	Analyse workplace safety performance data and trends.		
	4.5	Develop workplace safety improvement programmes to enhance occupational health and safety performance.		
	4.6	Prepare management reports on health and safety performance.		
LO 5: <i>Manage occupational health and safety training programs</i>	5.1	Assess workplace health and safety training needs.		
	5.2	Develop occupational health and safety training plans.		
	5.3	Coordinate the delivery of occupational health and safety training programmes in accordance with organizational		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
		requirements.										
	5.4	Evaluate the effectiveness of occupational health and safety training programmes and recommend improvements.										
	5.5	Maintain occupational health and safety training records.										
	5.6	Recommend continuous improvement measures to enhance workplace safety competence.										
Learners Signature:			Date:									
Assessors Signature:			Date:									
IQA Signature (if sampled)			Date:									
EQA Signature (if sampled)			Date:									

UNIT 004: ADVANCED HYDRAULIC SYSTEMS DIAGNOSIS, REPAIR AND PERFORMANCE TESTING

Unit Reference Number: AGR/AEM/004/L5

NSQ Level: 5

Credit Value: 8

Guided Learning Hours: 80

Practice Time: 260 hours

Unit Purpose: This course is designed to equip learners with knowledge and skills to carry out preventive maintenance, basic testing and minor repairs of agricultural hydraulic systems.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 004: Advanced Hydraulic Systems Diagnosis, Repair and Performance Testing

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Manage safe work practices for hydraulic system diagnosis, repair, and performance testing.</i>	1.1	Carry out safety pressure relief procedure, oil cleanliness control using ISO standard method.		
	1.2	Identify the basic types of systems: open vs closed hydraulic system.		
	1.3	Use appropriate personal protective equipment (PPE) in accordance with safety requirements.		
LO 2: <i>Comply with simple law of hydraulic system</i>	2.1	Measure hydraulic pressure at designated points in a hydraulic circuit using appropriate pressure gauges.		
	2.2	Dismantle a tractor hydraulic cylinder in accordance with manufacturer specifications.		
	2.3	Inspect a tractor hydraulic cylinder in accordance with manufacturer specifications.		
	2.4	Reassemble a tractor hydraulic cylinder in accordance with manufacturer specifications.		
	2.5	Perform hydraulic system air-bleeding procedures in accordance with manufacturer specifications.		
	2.6	Test hydraulic relief valve settings in accordance with manufacturer specifications.		
LO 3: <i>Evaluate agricultural hydraulic</i>	3.1	Identify pump types and operation in agricultural hydraulic system.		
	3.2	Locate valves direction, relief and faults.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page No.			
<i>components and hydraulic circuit symbols.</i>	3.3	Verify single/double cylinders acting in agricultural hydraulic system.									
	3.4	Inspect hydraulic components for wear, leakage, damage and improper installation									
LO 4: <i>Evaluate hydraulic fluids and viscosity for agricultural equipment.</i>	4.1	Use ISO hydraulic oil viscosity grades and select appropriate oils for specific hydraulic system applications									
	4.2	Identify the causes of oil contamination in agricultural hydraulic system.									
	4.3	Explain the manufacturer service intervals, oil filter size, oil grades and hose size.									
	4.4	Assess the effects of incorrect hydraulic fluid viscosity on hydraulic system efficiency and component life.									
	4.5	Assess hydraulic fluid condition and recommend corrective actions for contamination or degradation.									
	4.6	Apply safe procedures when handling, replacing and disposing of hydraulic fluids.									
	4.7	Prepare records of hydraulic fluid inspection, testing and replacement in accordance with workplace procedures.									
Learners Signature:			Date:								
Assessors Signature:			Date:								
IQA Signature (if sampled)			Date:								
EQA Signature (if sampled)			Date:								

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		



UNIT 005: EQUIPMENT PROCUREMENT, INSPECTION AND COMMISSIONING

Unit Reference Number: AGR/AEM/005/L5

NSQ Level: 5

Credit Value: 6

Guided Learning Hours: 60

Practice Time: 220 hours

Unit Purpose: This unit is designed to equip learner with knowledge and skills to manage the agricultural equipment acquisition.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 005: Equipment Procurement, Inspection and Commissioning

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Coordinate the procurement of agricultural equipment and components.</i>	1.1	Conduct a technical needs assessment for agricultural equipment procurement.			
	1.2	Determine equipment requirements based on operational needs and technical specifications.			
	1.3	Evaluate supplier quotations against quality, cost, warranty, and delivery requirements.			
	1.4	Verify compliance of equipment specifications with applicable standards and organizational requirements.			
	1.5	Prepare a procurement recommendation report.			
LO2: <i>Conduct pre-delivery and acceptance inspection of agricultural equipment</i>	2.1	Verify equipment against purchase specifications and delivery documents.			
	2.2	Inspect equipment for physical damage, completeness, and manufacturing defects.			
	2.3	Confirm the availability of manuals, certificates, accessories, and warranty documents.			
	2.4	Report non-conformities and recommend corrective actions.			
	2.5	Apply appropriate rejection, conditional acceptance, or hold procedures when equipment fails to meet specification.			
LO 3: <i>Commission agricultural equipment</i>	3.1	Prepare equipment for commissioning according to manufacturer specifications.			

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type				Evidence Ref. Page No.
The learner will:		The learner can:					
<i>for operational use.</i>	3.2	Perform functional, safety, and performance tests using approved procedures.					
	3.3	Calibrate equipment settings to achieve specified operating performance.					
	3.4	Verify compliance with safety, environmental, and operational standards before commissioning.					
	3.5	Hand over the commissioned machinery and implement to the end user through a structured formal handover process.					
Learners Signature:			Date:				
Assessors Signature:			Date:				
IQA Signature (if sampled)			Date:				
EQA Signature (if sampled)			Date:				

UNIT 006: PRECISION AGRICULTURE SYSTEMS AND SMART EQUIPMENT TECHNOLOGIES

Unit Reference Number: AGR/AEM/006/L5

NSQ Level: 5

Credit Value: 8

Guided Learning Hours: 80

Practice Time: 260 hours

Unit Purpose: This unit equip learners with the competencies to integrate, operate, and optimize precision agriculture technologies for improved farm productivity, efficiency, and sustainability

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 006: Precision Agriculture Systems and Smart Equipment Technologies

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Use precision agriculture technologies</i>	1.1	Assess farm requirements, farm size, crop type, and budget to determine the appropriate precision agriculture technology mix.		
	1.2	Evaluate accuracy, compatibility, and cost requirements to select appropriate precision agriculture technology solutions.		
	1.3	Assess compatibility with existing equipment and operator skills.		
	1.4	Prepare a technology selection report with recommendations.		
LO 2: <i>Integrate precision agriculture systems into one platform</i>	2.1	Develop a system integration plan covering data flow and interfaces.		
	2.2	Configure global navigation satellite system (GNSS), variable rate application (VRA) and farm management information system (FMIS) into one framework		
	2.3	Validate system integration by conducting functional and data accuracy tests.		
	2.4	Train operators and junior technicians on the operation and use of the integrated platform.		
	2.5	Document records of system integration architecture and implementation outcomes.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 3: <i>Evaluate precision agriculture system performance and recommend improvement strategies.</i>	3.1	Establish key performance indicators (KPIs) to measure system accuracy, reliability, and agronomic performance.		
	3.2	Analyse system data to evaluate performance against established key performance indicators (KPIs).		
	3.3	Implement system optimization through recalibration, software updates, and sensor replacement.		
	3.4	Present performance reports and recommendations to stakeholders.		
	3.5	Recommend long-term technology upgrade and system scalability strategies based on performance evaluation.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

Unit 007: ADVANCED TROUBLESHOOTING OF AUTOMATED AND ELECTRONIC AGRICULTURAL EQUIPMENT

Unit Reference Number: AGR/AEM/007/L5

NSQ Level: 5

Credit Value: 10

Guided Learning Hours: 100

Practice Time: 320 hours

Unit Purpose: This unit is designed to provide the learner with knowledge and skills to control, diagnose and maintain modern automated farm technology

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

UNIT 007: Advanced Troubleshooting of Automated and Electronic Agricultural Equipment

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Prepare for troubleshooting automated agricultural equipment.</i>	1.1	Apply workplace health, safety, and environmental procedures before commencing troubleshooting.		
	1.2	Review equipment manuals, troubleshooting guides, and operational records.		
	1.3	Secure equipment and establish safe operating conditions before troubleshooting.		
	1.4	Verify suitability of troubleshooting tools, test instruments, and software.		
LO2: <i>Isolate faults in automated agricultural equipment using systematic troubleshooting procedures.</i>	2.1	Follow approved troubleshooting procedures to isolate the source of operational faults.		
	2.2	Trace all electrical, hydraulic, pneumatic, mechanical, and control system pathways to locate interruptions affecting equipment operation.		
	2.3	Verify suspected fault locations through systematic elimination of possible causes.		
	2.4	Record isolated faults in accordance with workplace procedures.		
LO3: <i>Resolve operational faults in automated</i>	3.1	Perform appropriate corrective actions to eliminate identified operational faults.		
	3.2	Restore electrical, electronic, hydraulic, pneumatic, mechanical,		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
<i>agricultural equipment.</i>		or control system functionality according to manufacturer's specification.		
	3.3	Calibrate sensors to match required manufacture's baseline specifications.		
	3.4	Replace defective components where necessary.		
	3.5	Reset defective components where necessary.		
	3.6	Comply with safety and quality standards.		
LO4: <i>Verify equipment performance after troubleshooting.</i>	4.1	Conduct functional tests to confirm that the fault has been resolved.		
	4.2	Verify that automated systems, sensors, actuators, controllers, and communication interfaces operate correctly.		
	4.3	Confirm that equipment performance meets manufacture's specifications and operational requirements.		
LO5: <i>Complete troubleshooting documentation and restore equipment to service.</i>	5.1	Record troubleshooting activities, corrective actions, and test results accurately.		
	5.2	Update maintenance and service records in accordance with organisational procedures		
	5.3	Restore equipment to operational status following workplace procedures.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
	5.4	Report completed troubleshooting activities and recommend follow-up maintenance where necessary.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	



UNIT 008: AGRICULTURAL MACHINERY PERFORMANCE TESTING AND EVALUATION**Unit Reference Number: AGR/AEM/008/L5****NSQ Level: 5****Credit Value: 8****Guided Learning Hours: 80****Practice Time: 260 hours**

Unit Purpose: This unit is designed to equip learners with knowledge and skills to conduct and evaluate agricultural machinery performance tests and report findings to improve machinery efficiency and reliability.

Unit assessment requirements/ evidence requirement:

Assessment must be carried out in a real workplace environment where agricultural machinery testing, evaluation and performance assessment are undertaken. Assessment shall involve actual agricultural machinery and testing instruments. Simulation is not allowed except where specified by the awarding body for equipment that cannot reasonably be accessed.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 008: Agricultural Machinery Performance Testing and Evaluation

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Conduct agricultural machinery performance tests.</i>	1.1	Select appropriate machinery, testing equipment, and measuring instruments required to perform the specified test.		
	1.2	Develop a performance testing plan in accordance with workplace procedures and manufacturer's specification.		
	1.3	Prepare machinery and testing site before commencement of test.		
	1.4	Carry out performance tests on agricultural machinery.		
	1.5	Observe Occupational Health, Safety and Environmental (OHSE) requirements throughout the testing activities.		
LO 2: <i>Evaluate the performance of agricultural machinery to optimize operational efficiency.</i>	4.1	Collect operational data during machinery performance tests.		
	4.2	Assess agricultural machinery performance by measuring and interpreting key indicators, including: i. Field capacity ii. Field efficiency iii. Fuel consumption iv. Power output v. Wheel slip vi. Operational speed vii. Machine downtime.		
	4.3	Analyse performance data using appropriate analytical methods and digital tools.		

LEARNING OUTCOME (LO) The learner will:		PERFORMANCE CRITERIA (PC) (PC) The learner can:	Evidence Type	Evidence Ref. Page No.
	4.4	Compare test results with manufacturer's specification and applicable performance standards.		
	4.5	Identify operational limitations, faults and factors affecting machine performance.		
	4.6	Evaluate machinery suitability for specific agricultural operations.		
LO 3: <i>Prepare technical reports and recommend performance improvement strategies</i>	3.1	Prepare comprehensive machinery performance evaluation reports.		
	3.2	Present test findings using appropriate tables, graphs and charts		
	3.3	Recommend corrective maintenance and operational improvements based on test results.		
	3.4	Recommend machinery adjustments to improve efficiency and productivity.		
	3.5	Document performance records in accordance with organizational procedures.		
	3.6	Communicate evaluation results and recommendations to relevant stakeholders.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

UNIT 009: DIGITAL DIAGNOSTICS, TELEMATICS AND EQUIPMENT MANAGEMENT SYSTEMS**Unit Reference Number: AGR/AEM/009/L5****NSQ Level: 5****Credit Value: 8****Guided Learning Hours: 80****Practice Time: 260 hours****Unit Purpose**

This unit is designed to provide the learner with knowledge and skills required to use agricultural equipment diagnostic software and digital tools.

Unit Assessment Requirements / Evidence Requirements

Assessment must be carried out in a real workplace environment where agricultural equipment maintenance, diagnostics and repair operations are performed using modern electronic diagnostic equipment and manufacturer-approved software. Simulation is not allowed except where access to specific proprietary diagnostic systems is impracticable and approved by the awarding body.

Assessment methods to be used include:

1. Direct Observation (DO);
2. Personal Statement/Reflective Practice (PS/RP);
3. Witness Testimony (WT);
4. Assignment (ASS);
5. Work Products (WP);
6. Professional Discussion (PD);
7. Recognition of Prior Learning (RPL).

(This depends on the Trade Areas to be assessed)

Unit 009: Digital Diagnostics, Telematics and Agricultural Equipment Management Systems.

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Apply agricultural equipment diagnostic software and digital tools for fault diagnosis and performance evaluation.</i>	1.1	Identify appropriate agricultural equipment diagnostic software for specific diagnostic tasks.		
	1.2	Identify appropriate digital diagnostic devices for agricultural machinery, including: i. Laptop diagnostic systems ii. Scan tools iii. CAN Bus analysers iv. OBD diagnostic scanners v. Digital multi-meters vi. Oscilloscopes vii. Infrared thermometers		
	1.3	Explain the functions of each diagnostic software and digital tool.		
	1.4	Identify electronic control systems installed on agricultural machinery.		
LO 2: <i>Operate diagnostic software and digital diagnostic equipment.</i>	2.1	Evaluate equipment diagnostic requirements and select appropriate diagnostic software in accordance with manufacturer specifications.		
	2.2	Connect diagnostic equipment for agricultural machinery in accordance with manufacturer procedures.		
	2.3	Access machine electronic control units (ECUs) in accordance with manufacturer procedures to retrieve diagnostic data.		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	2.4	Retrieve diagnostic trouble codes (DTCs) using appropriate diagnostic software and equipment		
	2.5	Navigate diagnostic software to access and interpret machine information.		
	2.6	Retrieve machine operating parameters using appropriate diagnostic software and equipment.		
	2.7	Observe all safety precautions during diagnostic operations.		
LO 3: <i>Diagnose faults using electronic diagnostic systems.</i>	3.1	Interpret diagnostic trouble codes.		
	3.2	Monitor live machine operating data.		
	3.3	Compare sensors reading against manufacturer specifications to verify system performance.		
	3.4	Identify defective sensors, actuators and electronic components.		
	3.5	Verify faults using digital measuring instruments.		
	3.6	Recommend corrective maintenance actions.		
	3.7	Confirm repair effectiveness through post-repair diagnostics.		
LO 4: <i>Perform software calibration, updates and system configuration</i>	4.1	Identify systems requiring calibration.		
	4.2	Carry out software calibration according to manufacturer's procedures.		
	4.3	Install software updates where applicable.		

LEARNING OUTCOME (LO)		PERFORMANCE CRITERIA (PC)	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	4.4	Configure electronic control parameters.		
	4.5	Reset service indicators and maintenance reminders.		
	4.6	Verify correct system operation after calibration.		
	4.7	Ensure software licensing and cybersecurity requirements are maintained.		
LO 5: <i>Generate diagnostic reports and maintain digital service records.</i>	5.1	Generate electronic diagnostic reports.		
	5.2	Record diagnostic findings accurately.		
	5.3	Store electronic maintenance records securely.		
	5.4	Communicate diagnostic findings to supervisors and customers.		
	5.5	Recommend preventive maintenance based on diagnostic results.		
	5.6	Maintain confidentiality and integrity of electronic data.		
Learners Signature:			Date:	
Assessors Signature:			Date:	
IQA Signature (if sampled)			Date:	
EQA Signature (if sampled)			Date:	

**LIST OF MINIMUM FACILITIES AND EQUIPMENT AGRICULTURAL
EQUIPMENT MECHANICS NSQ/NOS LEVELS 4 AND 5**

A. FIELD MACHINERY

S/N	ITEM	QUANTITY REQUIRED
1.	Agricultural tractors	
2.	Walking tractors	
3.	Power tillers	
4.	Combine harvester	
5.	Rice transplanter	
6.	Boom sprayer	
7.	Seed drill/Planter	
8.	Fertilizer applicator	
9.	Disc plough	
10.	Disc harrow	
11.	Ridger	
12.	Cultivator	
13.	Rotary tiller	
14.	Subsoiler	
15.	Trailer	



B. AGRICULTURAL MECHANICS WORKSHOP

S/N	ITEM	QUANTITY REQUIRED
1.	Diesel engine trainer	
2.	Petrol engine trainer	
3.	Engine stand	
4.	Engine hoist	
5.	Compression tester	
6.	Injector tester	
7.	Fuel injection pump calibration bench	
8.	Cooling system trainer	
9.	Lubrication system trainer	
10.	Hydraulic training bench	
11.	Hydraulic power pack	
12.	Hydraulic test bench	
13.	Hydraulic cylinders	
14.	Hydraulic pumps	
15.	Hydraulic motors	
16.	Control valves	
17.	Pressure gauges	
18.	Flow meter	
19.	Oil contamination test kit	
20.	Seal installation kit	
21.	Clutch trainer	
22.	Manual gearbox trainer	
23.	Powershift/CVT trainer	
24.	Differential trainer	
25.	PTO trainer	
26.	Axles and drive shafts	
27.	Battery charger	
28.	Battery analyzer	
29.	Digital multimeter	
30.	Clamp meter	
31.	Oscilloscope	
32.	Alternator tester	
33.	Starter tester	
34.	CAN Bus trainer	
35.	ISOBUS trainer	
36.	ECU trainer	
37.	Workbench	
38.	Bench vice	
39.	Hydraulic press	
40.	Bearing pullers	
41.	Torque wrenches	
42.	Impact wrench	
43.	Grease gun	
44.	Parts washer	
45.	Hydraulic jack	
46.	Bottle jack	

47.	Transmission jack	
48.	Engine crane	
49.	Chain block	
50.	Forklift	
51.	Vehicle lift	
52.	Arc welder	
53.	MIG welder	
54.	TIG welder	
55.	Oxy-acetylene set	
56.	Plasma cutter	
57.	Bench grinder	
58.	Drill press	
59.	Vernier caliper	
60.	Micrometer	
61.	Dial indicator	
62.	Feeler gauge	
63.	Height gauge	
64.	Surface plate	
65.	Fuel pressure tester	
66.	Hydraulic pressure tester	
67.	Cooling system tester	
68.	Infrared thermometer	
69.	Thermal imaging camera	
70.	Tachometer	
71.	Vibration analyzer	
72.	Exhaust gas analyzer	
73.	PPE	
74.	Fire extinguishers	
75.	Eye wash station	
76.	Spill kit	
77.	LOTO kit	
78.	First aid box	
79.	Laser alignment system	
80.	Calibration tools	
81.	Tool cabinets	
82.	Tool trolleys	
83.	Storage racks	
84.	Student workstations	
85.	Instructor desk	
86.	Tool cabinets	
87.	PTO-driven implements	

C. ICT STUDIO

S/N	ITEM	QUANTITY REQUIRED
1.	Desktop computers	
2.	Laptops	
3.	Projector	
4.	Printer	
5.	Scanner	
6.	UPS	
7.	OEM diagnostic software	
8.	Diagnostic laptop	
9.	Diagnostic tablet	
10.	OBD scanner	
11.	CAN Bus analyzer	
12.	ISOBUS analyzer	
13.	GPS/GNSS receiver	
14.	RTK system	
15.	Auto-steering trainer	
16.	Telematics unit	
17.	Variable-rate controller	
18.	GIS workstation	



LIST OF PARTICIPANTS FOR THE NSQ/NOS ZERO DRAFT WORKSHOP FOR AGRICULTURAL EQUIPMENT MECHANICS LEVELS 4 & 5

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