MINISTRY OF LABOUR & SOCIAL PROTECTION

NATIONAL INDUSTRIAL TRAINING AUTHORITY

QUALIFICATION PACK AND NATIONAL OCCUPATIONAL STANDARDS FOR

BIOGAS SYSTEMS INTALLER I
KNQF LEVEL 4

[PARTNER LOGOS-GIZ, SNV, ABPL,BIONET, EPRA]

June 2023

1.5 Qualification Pack for Biogas Systems Installer I

Qualification Pack Code	**NITA/EEW/QP/BSI3**	**Version number**	01
Occupation	Biogas Systems Installation	**Drafted on**	June 2023
Job Title	Biogas Systems Installer I	**Last reviewed on**	N/A
Sector	Energy, Electricity, Water and Allied Agencies (EEW)	**Next review date**	June, 2023
Sub-Sector	Energy		
Role Description	A Biogas Systems Installer I is responsible for the interpretation of designs, sizing of the biogas systems, siting of the system, costing, installation, testing, commissioning, maintenance, and repair of pre-fabricated and masonry work biogas systems of up to $50m^3$ while observing health, safety and relating effectively with colleagues and the public.		
KNOCS Ref. NO			
KNQF Level	4		
Minimum Educational Qualifications	KCSE grade D or KCPE with GTT in Mason-II, AWEL-II, PPF -II, EWM-II or any other equivalent qualification at KNQF Level 3		
Suggested Training	National Skills Certificate III (NSC-III)/Government Trade Test I (GTT-I) in biogas systems installation or any other relevant training at KNQF Level 4		
Minimum Job Entry Age	18 yrs.		
Experience:	None		
Applicable Occupational Competence Standards (OCS)	**NITA/EEW/NOS1/BSI3**	Maintaining Occupational Health and Safety at Workplace	
	NITA/EEW/NOS2/BSI3	Sizing, constructing, and installing prefabricated and masonry work biogas systems	
	NITA/EEW/NOS3/BSI3	Testing and commissioning of prefabricated and masonry work for biogas systems	

	NITA/EEW/NOS4/BSI3	Maintaining and repairing prefabricated and masonry work biogas systems
	NITA/EEW/NOS5/BSI3	Working effectively in a team
	Optional	
Performance Criteria	As described in the relevant OCS Units	
Keywords/Terms	**Descriptions**	
Sector	Sector is conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.	
Sub-Sector	Sub-Sector is derived from a further breakdown based on the characteristics and interests of its components	
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry	
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization	
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet the standard consistently.	
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task	
Qualifications Pack (QP)	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualification Pack is assigned a unique qualification pack code	
Qualification Pack Code	Qualification Pack Code is a unique reference code that identifies a qualifications pack	
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Kenyan context.	

National Occupational Standards (NOS) Code	This is a unique identifier for an occupational standard.
National Occupational Standards (NOS) Title	This a unique identifier for an occupational standard.
Role description	This gives a short summary of the unit content. It is helpful to anyone searching on a database to verify that this is the appropriate qualification pack they are looking for
Biogas system	It is a plant that operates on anaerobic digestion of organic feedstock (AD) includes piping, gas use appliances that produces biogas and bio-slurry
Pre-fabricated biogas system	It is a biogas system that consists of parts that are manufactured off-site, portable and assembled at the site
Masonry biogas system	It is a biogas system whose digester and/or gas holder is made of brick and mortar

2.1 National Occupational Standards for Procedures Maintaining Occupational Health and Safety at Workplace

NOS Code	**NITA/EEW/NOS1/BSI3**	**Version number**	00
NOS Title	Maintaining Occupational Health and Safety at Workplace	**Drafted on**	June 2023
Occupation	Biogas Systems Installation	**Last reviewed on**	N/A
Job Title	Biogas Systems Installer I	**Next review date**	June 2027
KNOCS Ref. No.			
Sector	Energy, Electricity, Water and Allied Agencies (EEW)		
Subsector	Energy		
NOS Description	This NOS describes the skills and knowledge required to maintain health and safety at the workplace while installing pre-fabricated and masonry biogas systems		

Scope	This NOS covers the following elements: 1. Observing and maintaining safety at the workplace while installing pre-fabricated and masonry work biogas systems 2. Maintaining health at the workplace
Element	**Performance Criteria**
Observing and maintaining safety at the workplace	**To be competent, the individual should be able to:**
	PC-1 Observe safety of self
	PC-2 Observe safety of others
	PC-3 Use tools and equipment safely
	PC-4 Handle, use and store materials safely
	PC-5 Avail first aid kit in an accessible location
	PC-6 Use first aid kit as per the specifications
	PC-7 Perform first aid procedures
	PC-8 Avail firefighting equipment in an accessible location
	PC-9 Use firefighting equipment as per the specifications
	PC-10 Follow work instructions
	PC-11 Maintain workplace cleanliness
	PC-12 Ensure all deep excavations are fenced off for both human and animal safety
	PC-13 Report hazardous observations, incidences and accidents
Maintaining health at the workplace	PC-14 Maintain medical health and physical fitness of self
	PC-15 Manage hazards and risks
	PC-16 Manage contact and contamination risks
	PC-17 Observe health and safety precautions when handling hazardous materials
Knowledge and Understanding	

Organizational Context	**The individual on the job needs to understand:**
	KA-1 Organisational reporting structure
	KA-2 Organisational policies and procedures
	KA-3 Organisational code of conduct
	KA-4 Occupational Safety and Health Act
	KA-5 Workman Injury and Benefit Act
	KA-6 Environment Management Coordination Act
	KA-7 Familiarize with work and procedure manuals
Technical Knowledge	**The individual on the job needs to know and understand:**
	KB-1 Procedures for handling various materials
	KB-2 Procedure for performing various types of first aid
	KB-3 Procedure for fighting various types of fires
	KB-4 The correct procedure for adorning and use of PPE
	KB-5 The correct usage of tools and equipment
	KB-6 The correct storage, repair and maintenance of tools and equipment
	KB-7 How to identify, select and correctly use materials
	KB-8 The correct operation of tools and equipment from user manuals
	KB-9 Basic electrical safety
Generic Skills	
Writing skills	The individual on the job needs to know and understand how to: SA-1 Make safety reports
	SA-2 Write statements on incidences and accidents
	SA-3 Write correspondence (e-mails and letters) using basic computer skills
Reading skills	SA-4 Correctly read and interpret technical drawings
	SA-5 Read, understand and correctly apply manuals
	SA-6 Correctly interpret and observe safety signage and posters

Oral Communication Skills	SA-7 Effectively communicate in a common language and augment it with sign language where necessary
Professional Skills	
Integrity	**The individual on the job needs to know and understand how to:**
	B-1 Take responsibility for commissions and omissions during Biogas Installation
	B-2 Account for commissions and omissions
Team work	**The individual on the job needs to know and understand how to:**
	B-8 Respect the opinion of others on safety measures and procedures
	B-9 Effectively collaborate with team members on safety procedures

2.1.1 Assessment Criteria for Maintaining Occupational Health and Safety at Workplace

Assessment Criteria Code	**NITA/EEW/AC1/BSI3**	**Version number**	00
Occupation	Biogas Systems Installation	**Drafted on**	June 2023
Job Title	Biogas Systems Installer -II	**Last reviewed on**	N/A
Sector	Energy, Electricity, Water and Allied Agencies (EEW)	**Next review date**	May 2027
KNOCS No.			
NOS Code	**NITA/EEW/NOS1/BSI3**		
Guidelines for Assessment			
1.	The industry will develop a criterion for assessment of each NOS. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. The industry will be lay down proportions of marks for theory and practical competencies for each performance criteria		

2.	The industry will create a bank of questions for Theory to test knowledge.
3.	Assessment agencies will create unique evaluations for skill practical for every student at each examination based on the Performance Criteria.
4.	To pass a NOS, every trainee should score a minimum of 80%
5.	In-case of a fail, the trainee may re-sit the NOS in the subsequent assessment
6.	The NOS must be marked out of 100

Assessable Outcomes	**Performance Criteria for Outcomes**	**Weightage**		
		Knowledge	**Skills**	**Total Weightage**
Observing and maintaining safety at the workplace	**PC-1**			
	PC-2			
	PC-3			
	PC-4			
	PC-5			
	PC-6			
	PC-7			
	PC-8			
	PC-9			
Maintaining health at the workplace	PC-10			
	PC-11			
	PC-12			
	PC-13			
	PC-14			
	PC-15			
Total Weightage				100

2.2 National Occupational Standards (NOS) for Sizing, Constructing and Installing of Prefabricated and Masonry Work Biogas Systems

NOS Code	**NITA/MAA/NOS4/RBL4**	**Version number**	00
NOS Title	Sizing, constructing, and installing of prefabricated and masonry work biogas systems	**Drafted on**	June 2023
Occupation	Biogas Sytems Installation	**Last reviewed on**	N/A
Job Title	Biogas Sytems Installer I	**Next review date**	June 2027
KNOCS Ref. No.			
Sector	Energy, Electricity, Water and Allied Agencies (EEW)		
Subsector	Energy		
NOS Description	This NOS covers the skills, knowledge and attitude required to size, construct and install prefabricated and masonry work biogas systems		
Scope	This NOS covers the following for prefabricated and masonry work biogas systems 1. Carrying out site survey 2. Sizing of the biogas system 3. Constructing the prefabricated and masonry systems 4. Installing of the systems		
Element	**Performance Criteria**		
Carrying out site survey	**To be competent, the individual should be able to:**		
	PC-1 Establish client's requirements		
	PC-2 Conduct a topographic survey		
	PC-3 Conduct geological survey (soils, water table)		
	PC-4 Assess other site conditions including existing site structures, road reserve, water pipes, electric conduits and trees		
	PC-5 Determine conformity to national standards and regulations/guidelines		
	PC-6 Site the biogas system, considering contour lines		

Sizing of the prefabricated and masonry work biogas systems	PC-7 Assess the availability, type, consistency, quality, and quantity of the feed stock
	PC-8 Assess the client's energy needs
	9 Size the biogas system considering the hydraulic retention
	PC-10 Conform with the national standards and regulations/guidelines on bio-gas systems installation
	PC-11 Select an approved model and design subject to the size estimate of the biogas plant
	PC-12 Interpret drawings and designs
	PC-13 Interpret installation and construction manuals
	PC-14 Apply tolerable deviation from the designs
Constructing/installing a prefabricated/masonry work biogas systems	PC-15 Select and wear the appropriate safety gear
	PC-16 Select appropriate tools and equipment
	PC-17 Develop a material/component checklist
	PC-18 Set the datum
	PC-19 Set out the plant components
	PC-20 Conduct site excavation as required
	For masonry systems PC-21 Prepare the base/slab PC-22 Construct the digester walling PC-23 Install the inlet pipe PC-24 Construct/install the gas holder including the dome pipe PC-25 Construct the expansion chamber PC-26 Construct the mixing chamber/inlet and or feedstock collection chamber PC-27 Carry out finishing works to all components PC-28 Carry out landscaping and backfilling PC-29 Construct bio slurry collection pit/tank PC-30 Lay out the gas pipe/line with all necessary components PC-31 Install the appliances
	For prefabricated systems
	PC-32 Prepare the base/slab
	PC-33 Construct/install the digester/reactor
	PC-34 Install the inlet pipe
	PC-35 Install the gas holder as the case may require
	PC-36 Install the expansion chamber as the case may require

	PC-37 Install/Construct the mixing chamber/inlet and or feedstock collection chamber
	PC-38 Carry out finishing works on all components where applicable
	PC-39 Carry out landscaping and back filling
	PC-40 Construct/install bio slurry collection pit/tank
	PC-41 Lay out the gas pipe/line with all necessary components
	PC-42 Install the appliances
Knowledge and Understanding	
Organizational Context	**The individual on the job needs to understand:**
	KA-1 Organisational code of conduct
	KA-2 Policies and procedures
	KA-3 Reporting structures
	KA-4 Organization's core mandate
	KA-5 Organization's strategic plans
Technical Knowledge	**The individual on the job needs to know and understand:**
	KB-1 Reading and interpretation of designs
	KB-2 Basic Surveying
	KB-3 Spatial planning
	KB-4 Basic Masonry
	KB-5 Basic Concrete technology
	KB-6 Safety considerations
	KB-7 Basic Plumbing
	KB-8 Basic Carpentry
	KB-9 Basic Steelworks
Skills	
Generic Skills	
Writing skills	**The individual on the job needs to know and understand how to:**

	SA-1 Write site survey and installation reports
	SA-2 Do bookkeeping
	SA-3 Keep construction records
Reading skills	SA-4 Read and interpret designs, product manuals, sketches, BoQs, and specifications
Oral Communication Skills	SA-5 Effectively communicate with supervisors, clients and fellow workers
	SA-6 Communicate the benefits of the biogas system to potential clients
	SA-7 Effectively communicate using common language and where necessary using sign language
Professional Skills	
Site Planning and Management	**The individual on the job needs to know and understand how to:**
	SB-1 Plan activities and tasks
	SB-2 Schedule and synchronise activities and tasks at the site
	SB-3 Manage resources used in biogas systems installation
	SB-4 Keep site records
	SB-5 Report work progress
Integrity	**The individual on the job needs to know and understand how to:**
	SB-6 Uphold professionalism in installation process
	SB-7 Ethically discharge their duties
Team work	**The individual on the job needs to know and understand how to:**
	SB-8 Accommodate others views
	SB-9 Support colleagues and superiors in carrying out their duties

2.2.1 Assessment Criteria for sizing, Constructing, and Installing of Prefabricated and Masonry Work Biogas Systems

Assessment Criteria Code	**NITA EEW/AC3/BSI3**	**Version number**	00
Occupation	Biogas Systems Installer II	**Drafted on**	Jan 2021
Job Title	Biogas Systems Installation	**Last reviewed on**	N/A
Sector	Energy, Electricity, Water and Allied Agencies (EEW) Energy	**Next review date**	Jan 2025
KNOCS No.			
NOS Code	**NITA/BSI/NOS3/BSI3**		

Guidelines for Assessment	
1.	The industry will develop a criterion for assessment of each NOS. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. The industry will be lay down proportions of marks for theory and practical competencies for each performance criteria
2.	The industry will create a bank of questions for Theory to test knowledge.
3.	Assessment agencies will create unique evaluations for skill practical for every student at each examination based on the Performance Criteria.
4.	To pass a NOS, every trainee should score a minimum of 80%
5.	In-case of a fail, the trainee may re-sit the NOS in the subsequent assessment
6.	The NOS must be marked out of 100

Assessable Outcome	**Performance Criteria for Outcomes**	**Weightage**		
		Knowledge	**Skills Practical**	**Total Weightage**
Designing	PC-1			
	PC-2			

	PC-3			
	PC-4			
Constructing	PC-5			
	PC-6			
	PC-7			
	PC-8			
Installing	PC-9			
	PC-10			
	PC-11			
	PC-12			
Total Weightage				100

2.3 National Occupational Standards for Testing and Commissioning of Prefabricated and Masonry Work Biogas Systems

NOS Code	**NITA/EEW/NOS3/BSI3**	**Version number**	00
NOS Title	Testing and Commissioning of Prefabricated and Masonry Work Biogas Systems	**Drafted on**	June, 2023
Occupation	Bio-gas Systems Installation	**Last reviewed on**	N/A
Job Title	Bio-gas Systems Installer I	**Next review date**	June 2027
KNOCS Ref. No.			
Sector	Energy, Electricity, Water and Allied Agencies (EEW)		
Subsector	Energy		
NOS Description	This NOS covers knowledge, skills and attitude required for Testing and Commissioning Prefabricated and Masonry Work Biogas Systems		

Scope	This NOS covers covers the following elements: 1. Charging and filling the biogas digester 2. Testing 3. Commissioning the system
Element	**Performance Criteria**
Charging and filling the biogas digester	**To be competent, the individual should be able to:**
	PC-1 Wear appropriate PPE
	PC-2 Remove impurities
	PC-3 Ensure the right feed stock particle size
	PC-4 Re-treat the feedstock appropriately
	PC-5 Mix as per the ratio
	PC-6 Ensure consistency of the mixture
	PC-7 Load as per organic loading rate
Testing the biogas system	PC-8 Carry out visual inspection
	PC-9 Conduct mechanical inspection to ensure the components are well installed
	PC-10 Carry out functional test to ensure components are function as required
	PC-11 Test the quality of the gas produced
	PC-12 Verify the dimension and specifications where applicable
	PC-13 Trouble-shoot to identify any arising issue
Commissioning the biogas system	PC-14 Verify data
	PC-15 Conduct final checks on the system components
	PC-16 Prepare operational and maintenance schedules
	PC-17 Conduct end user training and issue the user manual
	PC-18 Prepare and issue completion and warrant certificates
	PC-19 Prepare and issue hand-over report
Knowledge and Understanding	
Organizational Context	**The individual on the job needs to understand:**
	KA-1 Relevant sections of relevant laws, regulations and standards (e.g. EMCA, WIBA, OSHA, NCA-Act, Biogas Standards etc).

	KA-2 Organisation reporting structure
	KA-3 Strategic plan of the organisation
	KA-4 Organisational policies and procedures
	KA-5 Code of conduct of the organisation and the industry
	KA-6 Core mandate of the organisation
Technical Knowledge	**The individual on the job needs to know and understand:**
	KB-1 Plant charging and feeding procedure
	KB-2 Feedstock mixing procedure
	KB-3 Visual inspection procedure
	KB-4 Mechanical inspection process
Skills	
Generic Skills	
Writing skills	**The individual on the job needs to know and understand how to:**
	SA-1 Write reports
Reading skills	SA-2 Read and interpret drawings and manuals
Oral Communication Skills	SA-3 Communicate with colleagues and clients
	SA-4 Market the biogas technology
Professional Skills	
Problem-solving	**The individual on the job needs to know and understand how to:**
	SB-1 Assess, analyse, quantify and cost problems identified
	SB-2 Resolve issues identified during the testing in a timely manner
	SB-3 Minimize losses when resolving issues identified during troubleshooting and testing of the biogas system
Team work	**The individual on the job needs to know and understand how to:**
	SB-1 Work with other colleagues and professionals

	SB-2 Take responsibility for problems from team effort
	SB-3 Acknowledge the contribution of others in team achievements

2.3.1 Assessment Criteria for Testing and Commissioning Prefabricated and Masonry Work Biogas Systems

Assessment Criteria Code	**NITA/EEW/AC3/BSI3**	**Version number**	00
Occupation	Biogas Systems Installation	**Drafted on**	June 2023
Job Title	Biogas Systems Installer-II	**Last reviewed on**	N/A
Sector	Energy, Electricity, Water and Allied Agencies (EEW)	**Next review date**	Jan 2025
KNOCS No.			
NOS Code	**NITA/EEW/NOS3/BSI3**		

Guidelines for Assessment	
1.	The industry will develop a criterion for assessment of each NOS. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. The industry will be lay down proportions of marks for theory and practical competencies for each performance criteria
2.	The industry will create a bank of questions for Theory to test knowledge.
3.	Assessment agencies will create unique evaluations for skill practical for every student at each examination based on the Performance Criteria.
4.	To pass a NOS, every trainee should score a minimum of 80%
5.	In-case of a fail, the trainee may re-sit the NOS in the subsequent assessment
6.	The NOS must be marked out of 100

Assessable Outcome	**Performance Criteria for Outcomes**	**Weightage**		
		Theory	**Skills Practical**	**Total Weightage**

Charging the biogas system	PC-1			
	PC-2			
	PC-3			
	PC-4			
	PC-5			
Testing the biogas system	PC-6			
	PC-7			
	PC-8			
Commissioning of biogas system	PC-9			
	PC-10			
	PC-11			
	PC-12			
	PC-13			
Total Weightage				100

2.4 National Occupational Standard for Maintenance and Repair of Pre-fabricated and Masonry work Biogas Systems

NOS Code	**NITA/EEW/NOS4/BIS3**	**Version number**	00
NOS Title	Maintenance and Repair of Pre-fabricated and Masonry work Biogas Systems	**Drafted on**	June 2023
Occupation	Biogas System Installation	**Last reviewed on**	N/A
Job Title	Biogas System Installer I	**Next review date**	June

			2027
KNOCS Ref. No.			
Sector	Energy, Electricity, Water and Allied Agencies (EEW)		
Subsector	Energy		
NOS Description	This NOS covers the knowledge, skills and attitude required to perform maintenance and repair of biogas systems		
Scope	This NOS covers: 1. Maintenance of the biogas system 2. Repair of prefabricated biogas system and masonry work biogas systems		
Element	**Performance Criteria**		
Maintenance of the biogas system	**To be competent, the individual should be able to:** PC-1 Prepare a maintenance checklist and schedule		
	PC-2 Troubleshoot biogas systems		
	PC-3 Undertake routine and scheduled maintenance of system components without delays		
	PC-4 Carry out tests after maintenance. PC-5 Dispose waste arising from maintenance		
	PC-6 Maintain the required records and documentation such as the maintenance schedule, checklist and test certificates		
Repair of prefabricated biogas system and masonry work biogas systems	PC-7 Establish plant systems performance history		
	PC-8 Locate the problem through elimination and sequential troubleshooting method		
	PC-9 Identify the spare parts required		
	PC-10 Quantify the work		
	PC-11 Cost the repair work and get concurrence from the client		
	PC-12 Repair or replace broken system components and fixtures		
	PC-13 Test and recommission the system		
Knowledge and Understanding			

Organizational Context	**The individual on the job needs to understand:**
	KA-7 Relevant sections of relevant laws, regulations and standards (e.g. EMCA, WIBA, OSHA, NCA-Act, Biogas Standards etc)
	KA-8 Organisation reporting structure
	KA-9 Strategic plan of the organisation
	KA-10 Organisational policies and procedures
	KA-11 Code of conduct of the organisation and the industry
	KA-12 Core mandate of the organisation
Technical Knowledge	**The individual on the job needs to know and understand:**
	KB-1 Basic masonry
	KB-2 Basic plumbing
	KB-3 Use Biogas troubleshooting tools and equipment
	KB-4 Basic instrumentation methods
	KB-5 Maintenance skills
Generic Skills	
Writing skills	**The individual on the job needs to know and understand how to:**
	SA-1 Write maintenance report
	SA-2 Prepare maintenance checklists and schedule
	SA-3 Prepare recommissioning reports
Reading skills	SA-4 Read and interpret user manuals
Oral Communication Skills	SA-5 Communicate with the client, vendors and colleagues
	SA-6 Market biogas technology
	SA-7 Communicate on the operations and maintenance of the system
	SA-8 Train the client on operation and maintenance of the system
	SA-9 Active listening

Professional Skills	
Teamwork	**The individual on the job needs to know and understand how to:**
	SB-4 Work with other colleagues and other professionals
	SB-5 Support in conflict resolutions
Integrity	SB-6 Undertake routine and scheduled maintenance within the agreed timelines
	SB-7 Report the faults to the customer as identified
	SB-8 Avoid overcharging for repairs

2.4.1 Assessment Criteria for Troubleshooting, Maintenance and Repair of Pre-fabricated and Masonry work Biogas Systems

Assessment Criteria Code	**NITA/EEW/AC4/BSI**	**Version number**	01
Occupation	Bio-gas Systems Installation	**Drafted on**	May 2023
Job Title	Bio-gas Systems Installer I	**Last reviewed on**	N/A
Sector	Energy, Electricity, Water and Allied Agencies (EEW)	**Next review date**	May 2027
KNOCS No.			
NOS Code	**NITA/EEW/NOS4/BSI3**		

Guidelines for Assessment	
1.	The industry will develop a criterion for assessment of each NOS. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. The industry will be lay down proportions of marks for theory and practical competencies for each performance criteria
2.	The industry will create a bank of questions for Theory to test knowledge.
3.	Assessment agencies will create unique evaluations for skill practical for every student at each examination based on the Performance Criteria.

4.	To pass a NOS, every trainee should score a minimum of 80%
5.	In-case of a fail, the trainee may re-sit the NOS in the subsequent assessment
6.	The NOS must be marked out of 100

Assessable Outcome	**Performance Criteria for Outcomes**	**Weightage**		
		Knowledge	**Skills Practical**	**Total Weightage**
Maintenance of the the biogas system	PC-1			
	PC-2			
	PC-3			
	PC-4			
	PC-5			
	PC-6			
Trouble shooting	PC-7			
	PC-8			
	PC-9			
Repair of pre-fabricated biogas system and masonry work biogas systems	PC-10			
	PC-11			
	PC-12			
	PC-13			
Total Weightage				100

2.5 National Occupational Standards for Working Effectively in a team

NOS Code	NITA/EEW/NOS5/BSI3	Version number	00

NOS Title	Working effectively in a team	Drafted on	June 2023
Occupation	Biogas Systems Installation	Last reviewed on	N/A
Job Title	Biogas Systems Installer I	Next review date	June 2027
KNOCS Ref. No.			
Sector	Energy, Electricity, Water and Allied Agencies (EEW)		
Subsector	Energy		
NOS Description	This NOS describes the skills and knowledge required to work effectively with others		
Scope	This NOS covers the following: 1. Relating effectively with customers 2. Relating effectively with colleagues 3. Relating effectively with superiors		
Element	Performance Criteria		
Relating effectively with customers	To be competent, the individual should be able to:		
	PC-1 Communicate with the customers in a polite, professional and friendly manner		
	PC-2 Listen actively in a two-way communication with customers		
	PC-3 Understand the customer dissatisfaction and address their complaints effectively		
	PC-4 Avoid interrupting the customers while they are talking		
	PC-5 Seek feedback from the customers on what was discussed for concurrence.		
Relating effectively with colleagues	PC-6 Exhibit trust, support and respect to colleagues at the workplace		
	PC-7 Timely sharing of necessary information and knowledge		
	PC-8 Put team over individual goals.		
	PC-9 Share work where necessary according to the individual competencies and strengths		

Relating effectively with superiors	PC-10 Receive job order and instructions from reporting superior
	PC-11 Escalate unresolved problems or complaints to the relevant senior
	PC-12 Receive feedback on work standard
	PC-13 Document the completed work schedule and handover to the superior
	PC-14 Deliver quality work on time and report any anticipated reasons for delays
Knowledge and Understanding (K)	
A. Organizational Context (*Knowledge of the company/organization and its processes*)	The individual on the job needs to understand:
	KA-1 Organizational code of conduct
	KA-2 Organizational Policies and procedures
	KA-3 Reporting structures
	KA-4 Core mandate
	KA-5 Strategic plans
B. Technical Knowledge	The individual on the job needs to know and understand:
	KB-1 Reading and interpretation of designs
	KB-2 Basic Surveying
	KB-3 Spatial planning
	KB-4 Basic Masonry
	KB-5 Basic Concrete technology
	KB-6 Safety procedures
	KB-7 Basic Plumbing
	KB-8 Basic Carpentry
	KB-9 Basic Steelworks
	B-10 Reading and interpretation of biogas systems designs
Skills (S)	

A. Core skills/Generic Skills	
Writing skills	The individual on the job needs to know and understand how to:
	SA-1 Write basic reports
	SA-2 Bookkeeping (this appears technical)
	SA-3 Keep records
	Reading skills
	The individual on the job needs to know and understand how to:
	SA-4 Reading and interpretation of designs, product manuals, sketches, BoQs, and specifications
	Oral Communication Skills
	The individual on the job needs to know and understand how to:
	SA-5 Effectively communicates with supervisors, clients and fellow workers
	SA-6 To communicate the benefits of the biogas system to potential clients
A. Professional Skills	
The individual on the job needs to know and understand how to:	
Customer-focus	SB-1 Prioritize the customer's needs
	SB-2 Apply customer care skills
The individual on the job needs to know and understand how to:	
	SB-3 Take responsibility for team assignments
	SB-4 Support colleagues and superior to accomplish group targets

2.4.1 Assessment Criteria for Working Effectively in a Team

Assessment Criteria Code	**NITA/EEW/AC5/BSI3**	**Version number**	00

Occupation	Bio-gas Systems Installation	**Drafted on**	June 2023
Job Title	Bio-gas Systems Installer-II	**Last reviewed on**	N/A
Sector	Sector Energy, Electricity, Water and Allied Agencies (EEW)	**Next review date**	May 2027
KNOCS No.			
NOS Code	**NITA/EEW/NOS5/BSI3**		

Guidelines for Assessment	
1.	The industry will develop a criterion for assessment of each NOS. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. The industry will be lay down proportions of marks for theory and practical competencies for each performance criteria
2.	The industry will create a bank of questions for Theory to test knowledge.
3.	Assessment agencies will create unique evaluations for skill practical for every student at each examination based on the Performance Criteria.
4.	To pass a NOS, every trainee should score a minimum of 80%
5.	In-case of a fail, the trainee may re-sit the NOS in the subsequent assessment
6.	The NOS must be marked out of 100

Assessable Outcome	**Performance Criteria for Outcomes**	**Weightage**		
		Knowledge	**Skills**	**Total Weight**
	PC-1			
	PC-2			
	PC-3			
	PC-4			
	PC-5			
	PC-6			
	PC-7			

	PC-8			
	PC-9			
	PC-10			
	PC-11			
	PC-12			
	PC-13			
	PC-14			
	PC-15			
	PC-16			
	PC-17			
	PC-18			
	PC-19			
	PC-20			
	PC-21			
	PC-22			
Total Weightage				100