THE REPUBLIC OF UGANDA
Ministry of Education and Sports
Directorate of Industrial Training

Assessment and Training Package For

FAECAL SLUDGE TREATMENT PLANT OPERATOR

Qualification Level: 1

Occupational Cluster: ENGINEERING AND OTHER SCIENCES (SANITATION)

December 2024

Developed by:

Directorate of Industrial Training
Qualifications Standards Department

Supported by:

Ministry of Water and Environment

THE REPUBLIC OF UGANDA
Ministry of Water and Environment

DIRECTORATE OF INDUSTRIAL TRAINING

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Under BTVET Act, 2008 the functions of the Directorate of Industrial Training are:

(a) To identify the needs of the labour market for occupational competencies that fall under the UVQF;
(b) To regulate apprenticeship schemes;
(c) To foster and promote entrepreneurial values and skills, as an integral part of the UVQF;
(d) To secure adequate and sustainable financing for the efficient operations of the Directorate;
(e) To accredit training institutions or companies as assessment centres;
(f) To determine fees payable under the Act;
(g) To develop, apply, expand and improve the purposeful application of Uganda Vocational Qualifications defined in the UVQF;
(h) To assess and award Uganda Vocational Qualifications;
(i) To promote on-the-job training in industry for apprenticeship, traineeship and indenture training and for other training such as further skills training and upgrading; and
(j) To prescribe the procedure for the making of training schemes

Further to the above provisions, there is an established Uganda Vocational Qualifications Framework (UVQF), under part V of the BTVET Act, 2008. It is stated that:

The purpose of the UVQF is to define:
(a) Occupational standards in the world of work;
(b) Assessment standards;
(c) Vocational qualifications of learners who meet the set standards of different studies;
(d) Provide guidelines for modular training.

The UVQF shall follow principles of Competence Based Education and Training (CBET) which include:
(a) Flexible training or learning modules;
(b) Positive assessment and Certification;
(c) Assessment of Prior Learning;
(d) Recognition of formal and non-formal training;
(e) Self-paced or individual learning and
(f) Work place learning

For award and recognition of certificates, the BTVET Act, 2008 provides that:

(1) The Directorate and other examination boards established under the Act shall award certificates and diplomas for Business, Technical or Vocational education and training under the UVQF;

(2) The Certificates and Diplomas to be awarded shall be in the form prescribed by the Minister on the recommendation of the Industrial Training Council;

(3) The Certificates and Diplomas awarded under the Act shall be recognized in the Uganda education system and by the labour market.

Under the TVET Implementation Standards 2020, the proposed new mandate of the Directorate of Industrial Training shall be restricted to promoting the highest standards in the quality and efficiency of industrial training in the country and ensuring an adequate supply of properly trained manpower at all levels in the industry and the world of work.

The functions shall include:

a) Regulating Industrial training and trainers,
b) Developing industrial training curricula,
c) Harmonizing curricula and certificates of competence,
d) Assessing industrial training,
e) Development of occupational standards and Assessment and Training Packages (ATPs) for Trade Testing for the industry and world of work and
f) Awarding certificates in that respect

At operational level in the Directorate, the Qualification Standards Department performs development tasks related to concepts, procedures and instruments for establishment of the UVQF in close collaboration with both public and private stakeholders in vocational training.

In particular, the Department organizes and coordinates the development of Assessment and Training Packages for use in competence-based vocational training as well as standards-based assessment and certification.

The Directorate has therefore produced this Assessment and Training Package for use in implementing Competence-Based Education and Training mechanisms.

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Word from Permanent Secretary

The Ministry of Education and Sports (MoES) in co-operation with the private sector and other stakeholders embarked on reforming Business, Technical and Vocational Education and Training (BTVET) in Uganda. The reform led to the establishment of a Uganda Vocational Qualifications Framework (UVQF) based on Competence-Based Education and Training (CBET) principles.

The foreseen advantages of CBET include improved access, equity and relevance of BTVET, reduced unit costs of training, and recognition of Prior Learning (or on-the-job-training), among others.

As the Ministry executes its obligation of ensuring quality in training standards, the public-private partnership is being strengthened to improve occupational competence of the country's workforce without gender bias.

Further to efforts to link Education and Training to the real world of work, the Ministry through the BTVET department set up the Uganda Vocational Qualifications Framework (UVQF) Secretariat in 2004 which was main-streamed into DIT in 2008 as the Qualifications Standards Department.

To achieve the set-out targets in the reform process, the Directorate embarked on the anticipated UVQF design and development piloting its instruments and mechanisms in order to effectively enhance Competence-Based Education and Training (CBET) in Uganda.

To date, the Qualifications Standards Department of DIT has produced Assessment and Training Packages (ATP) for various occupations. Each ATP contains 3 parts namely:

1. Occupational/job Profile
2. Training modules and
3. Assessment instruments Banks

The ATP can be used by any training provider and/or those who wish to present themselves for Occupational Assessment and Certification.
Herewith, the Directorate of Industrial Training presents the "Assessment & Training Package (ATP)" for training, assessment and certification of a **FAECAL SLUDGE TREATMENT PLANT OPERATOR – QUALIFICATION LEVEL 1.**

Finally, I thank all individuals, organizations and development partners who have contributed and/or participated in the development of this noble document.

Dr. Kedrace Turyagyenda
Permanent Secretary

Executive Summary

This Assessment and Training Package is a Competence-Based Education and Training (CBET) tool and consists of three major parts:

0.1 **PART I: The "Occupational Profile" (OP) of a FAECAL SLUDGE TREATMENT PLANT OPERATOR.** This Occupational Profile which was developed by Faecal Sludge Treatment Plant Operators practicing in the world of work, mirrors the duties and tasks FAECAL SLUDGE TREATMENT PLANT OPERATORS are expected to perform in the world of work.

0.2 **PART II: "Training Modules"** in the form of guidelines to train Faecal Sludge Treatment Plant Operator both on the job as well as in training centres (or combinations of both venues of learning). The Training Modules herein have been developed basing on the Occupational Profile and hence are directly relevant for employment.

0.3 **PART III: "Assessment Instruments"** in the form of performance (Practical) and written (theory) test items that can and should be used to assess whether a person complies with the requirements of employment as a Faecal Sludge Treatment Plant Operator. These assessment instruments were developed jointly by job practitioners (FAECAL SLUDGE TREATMENT PLANT OPERATOR) and teachers based on the occupational profile and training modules[1].

0.4 While the Occupational Profile (OP) contained in PART I of this document provides the information on **WHAT a person is expected to do** competently in the world of work, the test items, -including performance criteria- of PART III qualify the **HOW and/or HOW WELL a person must do the job**.

0.5 The modular format of the curriculum (PART II) allows learners to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing flexibility for learners to move directly into an entry level job, go for further modules or advance to higher levels of training. Modular courses allow more learners to access the training system because training centres as well as companies can accommodate more students in a given period of time.

0.6 In addition to improved access, equity and relevance of BTVET, the UVQF will also enable people who are convinced to have acquired competencies laid down in this ATP through prior training and on-the-job experience to access assessment and certification directly; be it on the basis of a single module, a group of modules or all modules pertaining to the occupation at once. This achievement will facilitate Recognition of Prior Learning (RPL).

[1] *In this document, only sample test items for assessing (practical) performance and occupational knowledge (theory) are included. A larger selection of test items can be obtained from an electronic Test Item Bank at Directorate of Industrial Training*

0.7 The parts of this Assessment and Training Package were sequentially developed as follows:

i Part 1: Occupational Profile: ***December 2024***
ii Part 2: Training Modules: ***December 2024***
iii Part 3: Assessment Instruments (initial bank): ***December 2024***

This ATP (or parts of it) may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

David Mubiru Luyima

Ag.Director DIT

Acknowledgement

The Qualifications Standards Department of DIT wishes to sincerely acknowledge the valuable contributions to the development of this Assessment and Training Package by the following persons, Institutions and organizations:

- Members of the DIT Industrial Training Council;
- The Director and staff of DIT;
- Ministry of Education and Sports;
- The practitioners from the world of work;
- GIZ Sanitation for Millions programme for financing the project
- Ministry of Water and environment
- Umbrella organization (MWE)
- Consultant development of a skills sanitation caretaker training curriculum.
- The facilitators involved in guiding the development panel in their activities.

Abbreviations and acronyms

A&C	Assessment & Certification
ATP	Assessment & Training Packages
BTVET	Business, Technical and Vocational Education and Training
CBET	Competency Based Education and Training
DIT	Directorate of Industrial Training
ITC	Industrial Training Council
GoU	Government of Uganda
GIZ	Deutsche Gesellschaft fur Intenationale Zusammenarbeit GmbH
LWA	Learning-working Assignment
MC	Modular Curriculum
MoES	Ministry of Education and Sports
OP	Occupational Profile
PEX	Practical Exercise
PTI	Performance (Practical) Test Item
QS	Qualification Standards
RPL	Recognition of Prior Learning
TIB	Test Item Bank
TVET	Technical, Vocational Education and Training
UVQ	Uganda Vocational Qualification
UVQF	Uganda Vocational Qualifications Framework
WTI	Written (Theory) Test Item

Key definitions

Assessment	Assessment is the means by which evidence is gathered and judged to decide if an individual has met the stipulated assessment standards or not. Testing is a form of formal assessment.
Certification	Certification is a formal procedure to issue a certificate (qualification) to an individual that has demonstrated during formal assessment that he/she is competent to perform the tasks specified in the occupational profile.
Competence	Integration of skills, knowledge, attitudes, attributes and expertise in doing /performing tasks in the world of work to a set standard.
Competency	(Occupational) competency is understood as the ability to perform tasks common to an occupation to a set standard.
CBET	Competence-Based Education and Training means that programs: 1. have content directly related to work 2. focus is on 'doing something well' 3. assessment is based upon industry work standards, and 4. curricula are developed in modular form
Duty	A duty describes a large area of work in performance terms. A duty serves as a title for a cluster of related Tasks (see also: TASK).
Learning-Working Assignment (LWA)	LWAs are simulated or real job situations / assignments that are suitable for learning in a training environment (e.g. "small projects"). In a working environment, LWAs are real work situations/assignments.
Module	Modules are part(s) of a whole curriculum. Modules can be considered as "self-contained" partial qualifications which are described by learning outcomes or competencies and which can be assessed and certified individually.
Occupational Profile (OP)	An Occupational Profile is an overview of the duties and tasks a job incumbent is expected to perform competently in employment. Occupational Profiles developed by practitioners from the world of work enhance the relevance of training and learning to the requirements of the world of work.

	Occupational Profiles define WHAT a person is supposed to do in performance terms. They also contain generic information regarding related knowledge and skills, attitudes/behavior, tools, materials and equipment required to perform as well as trends/ concerns in the occupation. Occupational profiles are the reference points for developing modular curricular and assessment standards
Qualification	A qualification is a formal recognition for demonstrating competence, based on formal assessment against set standards. A qualification is provided to the individual in form of a certificate specifying the nature of the competence.
Practical Exercise (PEX)	PEXs are practical exercises that are suitable for learning in a training environment
Task	Job TASKS represent the smallest unit of job activities with a meaningful outcome. Tasks result in goods, service, or decision. They represent an assignable unit of work and have a definite beginning and ending point. Tasks can be observed and measured. *(see also: Duty)*

1.0 ATP-PART I

Occupational Profile for FAECAL SLUDGE TREATMENT PLANT OPERATOR

1.1 The OCCUPATIONAL PROFILE (OP) for "Faecal Sludge Treatment Plant Operator" below defines the ***Duties*** and ***Tasks*** a competent Faecal Sludge Treatment Plant Operator is expected to perform in the world of work (on the job) in Uganda and the East African region today.

1.2 Since it reflects the skill requirements of work life, the Occupational Profile is the reference document for the subsequent development of training modules and assessment instruments (test items) which are directly relevant to employment in Ugandan and the East African businesses and industries.

1.3 To ensure that the Occupational Profile is relevant for employment in Uganda and East Africa, the DIT used the method of "occupational/job profiling.[1]

1.4 This approach involves the brainstorming of a panel of 8 to 12 competent job practitioners guided by trained and experienced facilitators. During a two-day workshop the panelists define the duties and tasks performed in employment, as well as the prerequisite skills, knowledge, attitudes, tools and equipment, and the future trends and concerns in the occupation/job.

1.5 The panelists, facilitators and coordinators who participated in developing this Occupational Profile for a Faecal Sludge Treatment Plant Operator are listed on the following page.

Job Expert Panel

James Ojoatre
Ministry of Water and Environment-NUWS

Tugume Mark
Ministry of Water and Environment-NUWS

Nakagiri Anne
Kyambogo University/ Consultant

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Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Sanitation for Millions (S4M)

THE REPUBLIC OF UGANDA

Ministry of Education and Sports

Directorate of Industrial Training

Occupational Profile of a FAECAL SLUDGE TREATMENT PLANT OPERATOR

Developed by: Qualifications standards Department

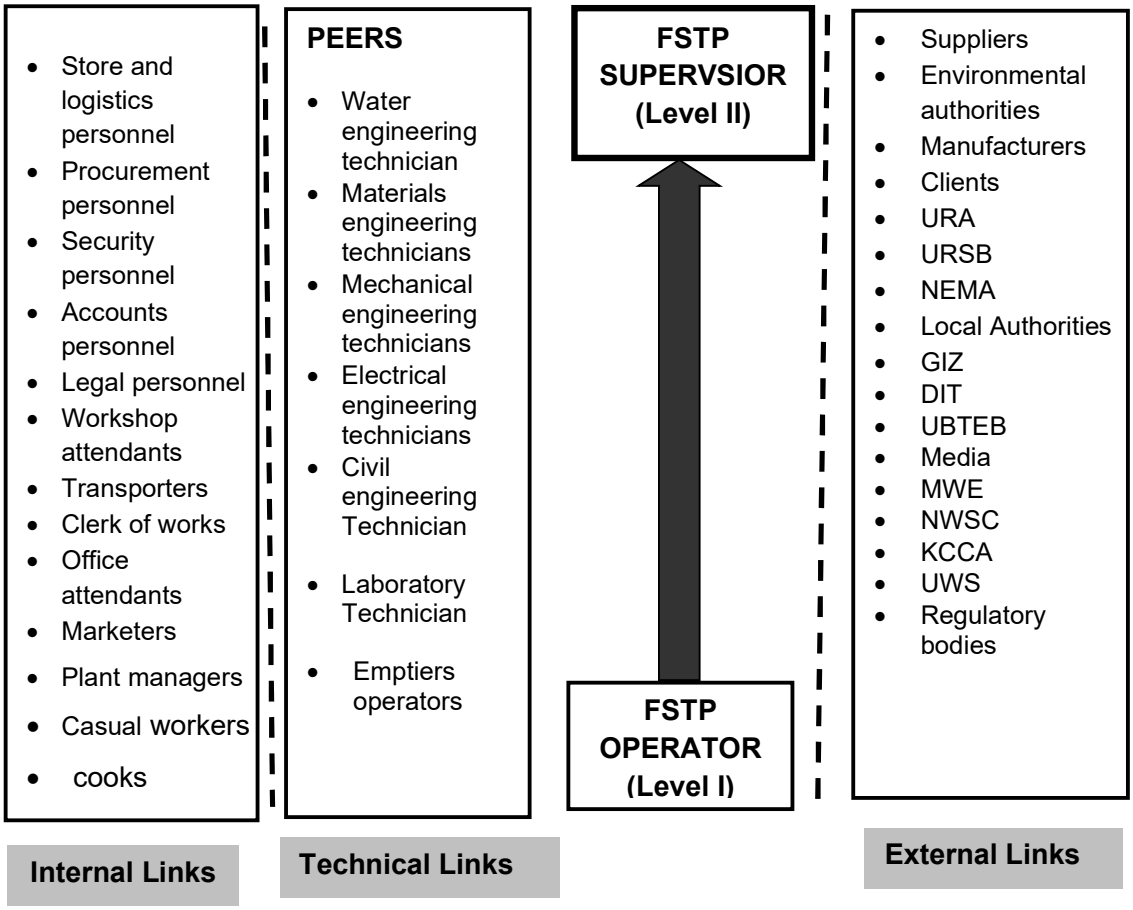
Directorate of Industrial Training

Dates of workshop: 2nd- 4th December 2024

NOMENCLATURE FOR THE OCCUPATION OF FAECAL SLUDGE TREATMENT PLANT OPERATOR

Definition: A Faecal Sludge Treatment Plant Operator (FSTP) is a person who ensures smooth handling of faecal sludge from reception up to disposal according to available standards.

JOB ORGANISATION CHART FOR A FAECAL SLUDGE TREATMENT PLANT OPERATOR



Level 1 FSTP Operator is a person who ensures smooth handling of faecal sludge from reception up to disposal according to available standards under supervision.

Level 2 FSTP Supervisor is a person who ensures smooth handling of faecal sludge from reception up to disposal according to available standards and supervises operations.

Duties and Tasks

A. PLAN WORKS	**A1** Prepare work Plan	**A2** Prepare Budget	**A3** Prepare procurement plans
	A4 Map potential clients	**A5** Prepare Maintenance plan	**A6** Plan for Community engagement

B. MANAGE FSTP OPERATIONS	**B1** Receive trucks	**B2** Record trucks	**B3** Collect samples
	B4 Dilute faecal Sludge	**B5** Operate tools and equipment	**B6** Collect screenings
	B7 Open/close valves	**B8** Load Faecal Sludge Dried Bed	**B9** Operate pumps
	B10 Discharge liquid effluent to the environment	**B11** Remove sludge	**B12** Decompose bio-solid
	B13 Load Bio solid on trucks	**B14** Supervise of Faecal Sludge Treatment Plants works	

C. PERFORM PREVENTIVE MAINTENANCE	**C1** De-silt channels	**C2** Remove witted plants	**C3** Refill sand
	C4 Plant vegetation in sludge drying beds	**C5** Clean tools and equipment	**C6** Service tools and equipment
	C7 Store equipment, tools and materials	**C8** Inspect systems	

D. PERFORM CORRECTIVE MAINTENANCE	**D1** Identify faults of flow in channels and pipes	**D2** Unblock channels and pipes	**D3** Identify faults in electromechanical components
	D4 Perform minor system repairs	**D5** Report faults	**D6** Repair tools and equipment
	D7 Replace tools and equipment	**D8** Supervise installation of systems	

E. PERFORM ADMINISTRATIVE TASKS	**E1** Recruit staff/ workers	**E2** Orient staff/ Workers	**E3 supervise operations**
	E4 Set fees	**E5** Issue receipts	**E6** Collect service fee
	E7 Sell Faecal Sludge bio products	**E8** Market Faecal Sludge Treatment Services	**E9** Communicate with others
	E10 Manage budget	**E11** Prepare payment schedule	**E12** Prepare financial reports
	E13 Fill performance reports	**E14** Appraise Staff/ workers	**E15** Compile staff performance reports
	E16 Prepare FSTP status reports	**E17** Provide Security for the plant	**E18** Guide visitors on FSTP operations
	E19 Train interns		

E. PERFORM ADMINISTRATIVE TASKS	**J1** Seek regulatory approval Authority	**J2** Select facility location	**J3** Acquire premises
	J4 Equip facility	**J5** Source for service providers	**J6** Manage Human resources
	J7 Attend technical meetings	**J8** Supervise works	**J9** Manage financial resources
	J10 Manage material resources	**J11** Manage quality management system documents	**J12** Maintain records

F. PERFORM OCCUPATIONAL SAFETY, HEALTH & ENVIRONMENTAL PRACTICES	**F1** Wear PPE	**F2** Acquire vaccination	**F3** Observe SOPs
	F4 Administer first aid	**F5** Maintain personal hygiene	**F6** Clean environment
	F7 Manage waste	**F8** Identify hazards and risks	**F9** Manage fire outbreaks

Additional Information

Generic knowledge	Skills
1. Laws and regulations 2. Worker's rights and obligations 3. Technical symbols 4. Environmental standards 5. Health and safety regulations 6. Potential Hazards 7. Types and composition of sludge 8. Characteristics of sludge types 9. Sludge treatment processes and technologies 10. Sampling methods 11. Measuring technologies 12. Corporate policies and procedures 13. Technical and administrative SOPs 14. Reporting and disciplinary hierarchies	1. Basic first aid 2. Fire combating 3. Basic electrical installation (incl. electrical safety, circuit assembly, earthing, connecting equipment, fault identification) 4. Basic mechanical works 5. Basic plumbing (incl. joining, laying, levelling, repairing pipes and fittings) 6. Sampling of sludge 7. Basic on-site testing of sludge 8. Interpersonal skills 9. Communications skills 10. Time management 11. Trouble shooting 12. Computer knowledge 13. Recording skills

Tools, Equipment and Materials

1. Tool box set
2. Safety boots
3. Masks
4. Overalls
5. Gloves
6. Spirit level
7. Water pump
8. Pipe detector
9. Dumpy level
10. Grinder
11. Clamps
12. Hammer
13. Vice
14. Thread tape
15. Drilling machine
16. Tape measure
17. Scriber
18. Cutting snip
19. Pick axe
20. Fittings
21. Pipe bender/tube bender
22. Screws
23. Clips
24. Compass
25. Set squares
26. Trowel
27. Reamer
28. Butt welding machine
29. High speed cutter
30. Welding machine
31. Scaffold
32. Jigsaw
33. Hacksaw
34. Cutting Blades
35. Cement
36. Aggregates
37. Steel sections
38. Reinforcements
39. Water
40. Sand
41. PPR machine
42. Riveting gun
43. Soldering gun
44. PPR Pipes
45. GI pipes
46. PVC pipes
47. HDPE pipes
48. Copper tube bender
49. Pliers
50. Bending machine
51. Bolts and nuts
52. Building line
53. Divider
54. Sanitary appliances
55. Hand file
56. Wire brushes
57. Chipping hammer
58. Reservoirs
59. Paint materials
60. Timber
61. Hard core
62. Bricks/blocks
63. Gravel
64. Aluminium
65. Lime
66. Ladders
67. Damp proof materials
68. Pipe wrench
69. Stock and die
70. Tap
71. Power Threading machine
72. UPVC pipes
73. Forge
74. Chisel
75. Pressure testing machine
76. Shear machine
77. Spanners
78. Screwdrivers
79. Try-square
80. Builder's square
81. Gas welding equipment
82. Gloving machine
83. Galvanised iron sheets
84. Copper pipes
85. Gutters

Attitudes / Traits / Behaviours

1. Honest
2. Disciplined
3. Trust worthy
4. Hardworking
5. Dedicated
6. Team player
7. Responsible
8. Cooperative
9. Confident
10. Creative
11. Time conscious
12. Accurate
13. Observant
14. Good decision maker
15. Integrity
16. Patience
17. Committed
18. approachable
19. Good vision
20. Sense of detail
21. Cost conscious
22. Quality conscious
23. Flexible
24. Innovative
25. Organised
26. Obedient
27. Smart
28. Willing to improve
29. Sensitive to safety, health and environmental protection
30. Good customer care
31. Result orientated

Future Trends and Concerns

1. High health risk occupation
2. Low status occupation
3. Requires very thorough hygiene practices
4. Usually only one operator works on small scale FS treatment plants upcountry
5. Assessment and certification of practitioner
6. Drug abuse
7. Technology advancement
8. Creation of awareness for Health, Safety and environmental laws
9. Engineering software
10. Capacity building workshops for continuous professional development.
11. Formation of associations
12. Placement in public service structure

2.0 ATP – PART II

Training Modules for a FAECAL SLUDGE TREATMENT PLANT OPERATOR

2.1 A curriculum is a "guide /plan for teaching and learning" which provides a guide to teachers, instructors and learners. In the envisaged system of competence-based or outcome-oriented education and training (CBET), Curricula are no longer the benchmark against which assessment is conducted. It is rather the Occupational Profile that provides the benchmark for Curriculum development as well as assessment.

2.2 This modular format of the curriculum allows learners of the Faecal Sludge Treatment Plant Operator occupation to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing learners to move directly into an entry level job, do further modules and advance to higher levels of training. Modular courses allow more learners to access the training system because training centres, as well as companies can accommodate more students in a given period of time.

2.3 The modules were developed jointly by both instructors and job practitioners. They were developed using the Occupational Profile as a reference point and taking into account the specifications of training and learning outcomes.

2.4 The modules contain "Learning-Working Assignments" (LWAs) and related "Practical Exercises" (PEXs) as key elements.

LWAs are simulated or real job situations/assignments that are suitable for learning in a training environment (e.g. "small projects"). In a working environment, LWAs are real work situations.

PEXs are therefore sub-sets of a LWA.

2.5 In principle, and following the philosophy of Competence-Based Education and Training (CBET), the modules can be used as a guide for learning in a training Centre, at the workplace; or a combination of both.

WHO IS A FAECAL SLUDGE TREATMENT PLANT OPERATOR (LEVEL1)?

a person who ensures smooth handling of faecal sludge from reception up to disposal according to available standards under supervision.

OVERVIEW OF MODULES FOR A LEVEL 1 FAECAL SLUDGE TREATMENT PLANT OPERATOR

Code	Module Title	Average duration	
		Contact hours	Weeks
UE/FSTP/M 1.1	Operate Faecal Sludge Treatment Plant	200	5
UE/FSTP/M 1.2	Maintain Faecal Sludge Treatment Plant	200	5
UE/FSTP/M 1.3	Manage Waste	80	2
UE/FSTP/M 1.4	Perform administrative and Entrepreneur tasks	40	1
Summary	**4Training Modules**	**520 hours**	**13 weeks**

Note: Average duration is contact time but NOT calendar duration

It is assumed that:

- 1 day is equivalent to 8 hours of nominal learning and
- 1 month is equivalent to 160hours of nominal learning

Information given on the average duration of training should be understood as a guideline. Quick learners may need less time than indicated or vice versa.

At completion of a module, the learner should be able to satisfactorily perform the included Learning Working Assignments, their Practical exercises and attached theoretical instructions, as the minimum exposure.

Prior to summative assessment by recognized Agencies, the users of these Modules Guides are encouraged to carefully consider continuous assessment using samples of (or similar) performance (practical) and written test items available in part 3 of this ATP for a **FAECAL SLUDGE TREATMENT PLANT OPERATOR.**

Code	**UE/FSTP/M1.1**
Module title	**M1.1: OPERATE FAECAL SLUDGE TREATMENT PLANT**
Related Qualification	Part of Uganda Vocational Qualification (Faecal Sludge Treatment Plant Operator UVQ 1)
Qualification Level	1
Module purpose	After completion of this module, a trainee will be able to receive and safely treat Faecal sludge at the treatment plant.
Learning-Working Assignments (LWAs)	**LWA 1/1: Receive Faecal Sludge** **LWA 1/2: Treat faecal sludge** **LWA 1/3: Perform faecal sludge and bio-solids sampling** **LWA 1/4: Perform Occupational Health, Safety and Environmental protection practices.** ***Note:*** *1. The learning exercises may be repeated till the Trainee acquires targeted competence;* 2. *The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.*
Related Practical Exercises (PEXs)	**LWA 1/1: Receive Faecal Sludge** PEX 1.1: Record truck PEX 1.2: Record sludge volume PEX 1.3: Test sludge sample PEX 1.4: Charge disposal fee PEX 1.5: Empty truck
	LWA 1/2: Treat faecal sludge PEX 2.1: Monitor faecal sludge influent flows PEX 2.2: Screen faecal sludge influent flows PEX 2.3: Remove grit and screenings PEX2.4: Operate settlement and thickening tanks

	PEX2.5: Pump settled sludge PEX2.6: Operate sludge drying beds PEX2.7: Remove treatment by- products PEX2.8: regulate flows in the faecal sludge treatment plant PEX2.9: Report detected anomalies
	LWA 1/3: Perform faecal sludge and bio-solid sampling PEX 3.1: Take sample of faecal sludge, FSTP effluent and bio-solids PEX 3.2: Trace illegal discharges PEX 3.3: conduct minor onsite tests on faecal sludge and bio solids
	LWA1/4: Perform occupational health, safety and environmental protection practices PEX 4.1: Wear PPEs PEX 4.2: Acquire vaccination PEX 4.3: Identify hazards and risks PEX 4.4: Clean workplace PEX 4.5: Clean tools and equipment PEX 4.6: Store tools PEX 4.6: Maintain personal hygiene PEX 4.6: Observe SOPs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
Pre-requisite modules	None
Related knowledge/ theory	*For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:* • Types of tools, equipment and materials • Communication skills • Record keeping • ICT skills • Research skills • Monitoring and evaluation

	• Time management • PPE usage • Work ethics and etiquettes • Employability and Entrepreneurial skills • Public relations • First aid administration • Interpretation of parts book • Identification of Types of PPE • Risk management • Accounting • Sanitations and hygiene • Faecal sludge management • Basic plumbing • Basic electrical installation
Average duration of learning	200 *hours (25 days) of nominal learning suggested to include:* • *4 days of occupational theory and* • *21 days of occupational practice*
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank
Minimum required tools/ equipment/ implements or equivalent	Computers, Screening and grit equipment, rake, spade, air hose, pump, blower, generator, crusher, hose keeping equipment, shovel, long steel sieve, Sludge measuring equipment, ice box ,multiperimeter, Standard classroom training equipment, projector, screen, speakers, white boards, Buckets, wheelbarrow, measuring tape, steel rod, spade, first aid kit, screw drivers.
Minimum required materials and consumables or equivalent	Dust masks, stationery, PPEs, plastic sheets glass tube
Special notes	The learners should be introduced to sanitation service chain and processes in a faecal sludge treatment plant.

Code	UE/FSTP/M1.2
Module title	**M1.2: MAINTAIN FAECAL SLUDGE TREATMENT PLANT**
Related Qualification	Part of Uganda Vocational Qualification (Faecal Sludge Treatment Plant Operator UVQ1)
Qualification Level	1
Module purpose	After completion of this module, a trainee will be able to maintain faecal sludge treatment plant components, tools and equipment in good working conditions.
Learning-Working Assignments (LWAs)	**LWA 2/1: Maintain electromechanical components** **LWA 2/2: Maintain civil works** **LWA 2/3: Maintain tools and equipment** **LWA 2/4: Maintain accessories and appliances** **LWA 2/5: Perform occupational health, safety and environmental protection practices** ***Note:*** *1. The learning exercises may be repeated till the Trainee acquires targeted competence;* *2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.*
Related Practical Exercises (PEXs)	**LWA 2/1: Maintain electromechanical components** PEX 1.1: Assess electromechanical components PEX 1.2: Identify faults PEX 1.3: Report faults PEX 1.4: Replace minor component parts PEX 1.5: Test run components
	LWA 2/2: Maintain civil works PEX 2.1: Assess civil structures PEX 2.2: Identify the faults PEX 2.3: Seal cracks PEX 2.4: Unblock drainage pipes

	PEX 2.5: Fill sludge beds PEX 2.6: Remove witted plants PEX 2.7: Plant vegetation in sludge PEX 2.8: Report faults PEX 2.9: Fill maintenance form
	LWA 2/3: Maintain tools and equipment PEX 3.1: Assess tools and equipment PEX 3.2: Fill checklist PEX 3.3: Report faults PEX 3.4: Rectify minor faults PEX 3.5: Perform minor Servicing of tools and equipment PEX 3.6: Perform minor replacement of tools and equipment
	LWA 2/4: Perform occupational health, safety and environmental protection practices PEX 4.1: Wear PPE PEX 4.2: Identify hazards and risks PEX 4.3: Clean workplace PEX 4.4: Clean tools and equipment PEX 4.5: Store tools PEX 4.6: Administer first aid PEX 4.6: Manage Fire outbreak
Occupational health and safety	Practices, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
Pre-requisite modules	None

Related knowledge/ theory	*For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:* • Types of tools, equipment and materials • Communication skills

	• Record keeping • ICT skills
	• Research skills • Monitoring and evaluation • Time management • PPE usage • Work ethics and etiquettes • Employability and Entrepreneurial skills • Public relations • First aid administration • Interpretation of parts book • Identification of Types of PPE • Risk management • Accounting • Sanitations and hygiene • Faecal sludge management
Average duration of learning	200 hours (25days) of nominal learning suggested to include: • 4 days of occupational theory and • 21 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank

Minimum required tools/ equipment/ implements or equivalent	Hammers, files, drills, metal saws, riveting machines, rivets, bolts, nuts, wrenches, torque wrenches, hex keys, screwdrivers, pliers, thread cutters, steel brushes, metal drills, mixers, angle grinders, riveting machines, cutters, bar clamps, bench vices, Multiple work benches, turning machines, hydraulic presses, swing-beam shears, multi-purpose

	ironworkers, band saw, Training pipe sections, Computers with internet access, Fire extinguisher, first aid kit, projector, screen, speakers, white boards, flip charts, Trowel, Strip line.
Minimum required materials and consumables or equivalent	PPEs, Standard classroom consumables (e.g. flipchart paper, white board markers, chalk, pencils, notebooks, etc.) Sufficient amount of scrap metal (iron, stainless steel, cast iron, aluminium, brass, copper) , Sand , oil , cement,
Special notes	

Code	**UE/FSTP/M1.3**
Module title	**M1.3: MANAGE WASTE**
Related Qualification	Part of Uganda Vocational Qualification (Faecal Sludge Treatment Plant Operator UVQF1)
Qualification Level	1
Module purpose	After completion of this module, a trainee will be able to dispose solid waste and bio-solid generated at the faecal sludge treatment plant in a safe manner.
Learning-Working Assignments (LWAs)	**LWA 3/1: Manage screenings** **LWA 3/2: Manage other solid wastes** **LWA 3/3: Recycle bio-solids** **LWA 3/4: Perform occupational health, safety and environmental protection practices.** ***Note:*** *1. The learning exercises may be repeated till the Trainee acquires targeted competence;* *2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.*
Related Practical Exercises (PEXs)	**LWA 3/1: Manage screenings** PEX 1.1: Select tools and equipment PEX 1.2: Dry screenings PEX 1.3: Sort screenings PEX 1.4: Incinerate screenings PEX 1.5: Dispose ash
	LWA 3/2: Manage other solid wastes PEX 2.1: Select tools and equipment PEX 2.2: Collect waste PEX 2.3: Transfer waste to waste handling facility PEX 2.4: Sort waste PEX 2.5: Decompose degradable waste PEX2.6: Recycle waste PEX2.7: Dispose waste

	LWA 3/3: Recycle bio-solids PEX 3.1: Select tools, materials and equipment PEX 3.2: Receive bio-solids PEX 3.3: Pile bio-solids PEX 3.4: Monitor pile temperature PEX 3.5: Test maturity of pile PEX 3.6: Pack compost PEX 3.7: Store compost PEX 3.8: Make bio-solid briquettes
	LWA 3/4: Perform occupational health, safety and environmental protection practices PEX4.1: Wear PPE PEX4.2: Acquire vaccination PEX4.3: Identify hazards and risks PEX4.4: Clean workplace PEX4.5: Clean tools and equipment PEX4.6: Store tools PEX4.7 Maintain personal hygiene PEX4.8 Observe SOPs PEX4.9 Administer First aid PEX4.10 Manage fire out break
Occupational health and safety	Practices, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs.
Pre-requisite modules	None
Related knowledge/ theory	*For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:* • Types of tools, equipment and materials • Communication skills • Record keeping • ICT skills

	• Research skills • Monitoring and evaluation • Time management • PPE usage • Work ethics and etiquettes • Employability and Entrepreneurial skills • Public relations • First aid administration • Interpretation of parts book • Identification of Types of PPE • Risk management • Accounting • Sanitations and hygiene • Faecal sludge management • Basic plumbing • Basic electrical installation • Decision making skills • Problem solving skills • Critical thinking • Reflective thinking • Planning and organization
Average duration of learning	80 hours (10 days) of nominal learning suggested to include: • *3 days of occupational theory and* • *7 days of occupational practice*
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item Bank
Minimum required tools/ equipment/ implements or equivalent	Computers, Screening and grit equipment, rake, spade, air hose, hose keeping equipment, shovel, long steel sieve, Sickle, slasher, garden scissors, projector, screen, speakers, white boards, Buckets, wheelbarrow, measuring tape, steel rod, spade, first aid kit, screw drivers.
Minimum required materials and consumables or equivalent	Wire brush, Dust masks, stationery, PPEs, plastic sheets, glass tube, detergent, kerosene, lighter.
Special notes	

Code	**UE/HB/M1.4**
Module title	**M1.4 PERFORM ADMINISTRATIVE AND ENTREPRENEUR TASKS**
Related Qualification	Part of Uganda Vocational Qualification (Faecal Sludge Treatment Plant Operator UVQ1)
Qualification Level	1
Module purpose	After completion of this module, a trainee will be able to carry out administrative and entrepreneurial tasks and work effectively.
Learning-Working Assignments (LWAs)	**LWA 4/1: Perform financial tasks** **LWA 4/2: Perform Human Resource** **LWA 4/3: Manage Records** **LWA 4/4: Perform occupational health, safety and environmental protection practices.** ***Note:*** *1. The learning exercises may be repeated till the Trainee acquires targeted competence;* *2. The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.*
Related Practical Exercises (PEXs)	**LWA 4/1: Perform financial tasks** PEX 1.1: Cost works PEX 1.2: Procure resources PEX 1.3: Procure tools, materials and equipment PEX 1.4: Remunerate workers PEX 1.5: Prepare financial reports PEX 1.6: prepare proposals
	LWA 4/2: Perform Human Resource PEX 2.1: Prepare work plans PEX 2.2: Fill work schedules, logs and appraisals PEX 2.3: Manage conflict PEX 2.4: Communicate with workers PEX 2.5: Benchmark works

	LWA 4/3: Manage Records PEX 3.1: Compile defect reports PEX 3.2: Prepare job card reports PEX 3.3: keep operational manuals PEX 3.4: Prepare gate passes PEX 3.5: Prepare delivery and received notes PEX 3.6: File documents
	LWA 4/4: Perform occupational health, safety and environmental protection practices PEX4.1: Wear PPEs PEX4.2: Identify hazards and risks PEX4.3: Clean workplace PEX4.4: Clean tools and equipment PEX4.5: Store tools PEX4.6: Administer first aid PEX4.7: Manage fire outbreak
Occupational health and safety	Practices, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	*For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:* • Types of tools, equipment and materials • Communication skills • Record keeping • ICT skills • Research skills • Monitoring and evaluation • Time management • PPE usage • Work ethics and etiquettes • Employability and Entrepreneurial skills

	• Accounting • Risk management • Identification of Types of PPE • Interpretation of parts book • First aid administration • Public relations
Average duration of learning	40 hours (5 days) of nominal learning suggested to include: • *1 days of occupational theory and* • *4 days of occupational practice*
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Computers, pens, rulers, staplers, calculators, projectors, stamps, photocopier, binding machine.
Minimum required materials and consumables or equivalent	Pencils, rubber, paper, ink, cartridge, staples
Special notes	

4.0 ATP-PART III

Sample Assessment Instruments for a Faecal Sludge Treatment Plant Operator

3.1 ***Assessment*** of occupational competence is the procedure by which evidence is gathered and judged to decide if an individual (candidate) has met the stipulated assessment standards. In this ATP the ***standards*** to assess occupational competences are reflected in the Occupational Profile and related Test Items.

3.2 Assessment of occupational competence should comprise both practical (performance) testing and written (theory/knowledge) testing.

3.3 Based on the Occupational Profile, the GFA sewerage expert developed sample test items for assessing (practical) performance as well as items for assessing occupational knowledge (theory). The sample test items were stored in an electronic Test Item Bank (TIB) at the Directorate of Industrial Training.

3.4 Performance (Practical) Test Items (PTI) are closely related to typical work situations in Ugandan industries. They comprise a test assignment for candidates, and assessment criteria and/or scoring guides for use by assessors'.

3.5 Written Test items for testing occupational theory (knowledge) are presented in different forms which include:

- Short answer test items,
- Multiple choice test items, and
- Matching test items.

These written test items herein focus on functional understanding as well as trouble-shooting typically synonymous with the world of work.

3.6 Composition of assessment / test papers will always require good choices of different types of written test items in order to ensure the assessment of relevant occupational knowledge.

3.7 The test items contained in the Test Item Bank may be used for continuous / formative assessment during the process of training as well as for summative assessment of candidates who have acquired their competences non-formally/or informally.

3.8 In this document, the following samples of test items for assessing both performance (practical) and occupational knowledge (theory) of a **Faecal Sludge Treatment Plant Operator** are included:

Overview of Test Item Samples Included

No.	Type of Test Item	Numbers included
1	Written (Theory)- Short Answer	03
2.	Written (Theory)- Multiple Choice	02
3.	Written (Theory)- Matching item- (Generic)	01
4.	Written (Theory)-Matching item (Cause Effect)	01
4.	Written (Theory)- Matching item (Work sequence)	01
5.	Performance (Practical) Test Items	01
	Total	10

WRITTEN TEST ITEMS (SAMPLES)

DIT/ QS	**Test Item Database** **Written (Theory) Test Item- no. 1**			
Occupational Title:	**Faecal Sludge Treatment Plant Operator**			
Competence level:	1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C2			
Date of OP:	December 2024			
Related module:	M1.5			
Time allocation:	3 minutes			

Test Item	A screen and grit chamber is one of the treatment units found at a FSTP. Name any other **three** examples of treatment units.

Answer spaces	(i) …… (ii) …….. (iii) ……

Expected key (answers)	(i) Sludge drying beds (ii) Planted beds (iii) Dep row filters (iv) Composting units (v) incinerators (vi) anaerobic buffered reactors

DIT/ QS	**Test Item Database** **Written (Theory) Test Item- no. 2**			
Occupational Title:	Faecal Sludge Treatment Plant Operator			
Competence level:	1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	December 2024			
Related module:	M1.2			
Time allocation:	3 minutes			

Test Item	List three (03) tools that a FSTP operator working at the screen and grit chamber should be able to use

Answer spaces	(i) …… (ii) …… (iii) ……

Expected key (answers)	(i) Rack (ii) Shovel/ rake (iii) Wheel barrow (iv) Water jet machine (v) Scrubbing brush

DIT/ QS	**Test Item Database** **Written (Theory) Test Item- no. 3**			
Occupational Title:	Faecal Sludge Treatment Plant Operator			
Competence level:	1			
Code no.				
Test Item type:	Short answer	√		
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	December 2024			
Related module:	M1.3			
Time allocation:	3 minutes			

Test Item	State two types of materials used in drainage systems of a FSTP

Answer spaces	(i) …….. (ii) ……..

Expected key (answers)	(i) Cast iron (ii) Plastics (iii) Asbestos (iv) Concrete

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 4
Occupational Title:	Faecal Sludge Treatment Plant Operator
Competence level:	1
Code no.	

Competence level:	1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	December 2024			
Related module:	M1.5			
Time allocation:	2 minutes			

Test Item	Which of the following are plants used in planted beds

Distractors and correct answer	A. Passion fruits B. Papyrus C. mangoes D. oranges

Key (answer)	**B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 5			
Occupational Title:	Faecal Sludge Treatment Plant Operator			
Competence level:	1			
Code no.				
Test Item type:	Short answer			
	Multiple choice	√		
	Matching item	Generic	Cause-Effect	Work-sequence
Complexity level:	C1			
Date of OP:	December 2024			
Related module:	M1.3			
Time allocation:	2 minutes			

Test Item	The following is a method for disposal of screenings

Distractors and correct answer	A. Bio-digestion B. incineration C. Sludge drying D. Composting

Key (answer)	**B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 7			
Occupational Title:	Faecal Sludge Treatment Plant Operator			
Competence level:	1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
			√	
Complexity level:	C2			
Date of OP:	December 2024			
Related module:	M1.1			
Time allocation:	3 minutes			

Test Item	Match the type of treatment in column A with their treatment units in column B

Column A (Cistern)	
A	Pre-treatment
B	Solid- liquid separation/ dewatering
C	Liquid treatment
D	Pathogen removal in bio-solids

Column B (Characteristic)	
1	Sludge drying beds
2	Incinerator
3	Screen and grit chamber
4	Planted gravel filters
5	Co-composting

Key (answer)	A-3, B-1, C-4, D-5

DIT/ QS	Test Item Database Written (Theory) Test Item- no.8			
Occupational Title:				
Competence level:	1			
Code no.				
Test Item type:	Short answer			
	Multiple choice			
	Matching item	Generic	Cause-Effect	Work-sequence
				√
Complexity level:	C2			
Date of OP:	December 2024			
Related modules:	M1.5			
Time allocation:	3 minutes			

Test Item	Arrange the following steps in accordance to the standard procedure for receiving faecal sludge at a FSTP.

Column A hronology)	**Column B (work steps) in wrong chronological order**	
1st	A	Instruct the desludging operator to close the valve
2nd	B	Take a one (0l) litre beaker
3rd	C	Wear personal protective equipment
4th	D	Test the faecal sludge to check pH, temperature, colour and odour
5th	E	Collect a small sample of faecal sludge
6th	F	Instruct the desludging truck operator to connect the hosepipe to the receiving chamber and turn the valve half way
7th	G	Accept sludge if pH, temperature, colour and odor are within specific acceptable limits or direct to other disposal site
8th	H	Select tools and equipment
9th	I	If accepted, fill log sheet
10th	J	Collect sample of faecal sludge for in-situ testing and laboratory testing
11th	K	Instruct the desludging operator to open valve and dispose faecal sludge

Key (answer)	1-C, 2-H, 3-B, 4-F, 5-E, 6-A, 7-D , 8-G, 9-I, 10-K, 11-J

4.0 ATP- PART IV

INFORMATION ON DEVELOPMENT PROCESS

4.1 Occupational Profile Development (December 2024)

The Occupational Profile was developed in December 2024 by job practitioners who were working in the Electrician occupation. The job expert panel, guided by Facilitators defined duties and tasks performed and provided additional generic information regarding the occupation.

4.2 Training Module Development (December 2024)

Based on the Occupational Profile for FAECAL SLUDGE TREATMENT PLANT OPERATOR level 1 Training Modules were developed by practitioners, guided by Facilitators.

4.3 Test Item Development (July 2024)

Based on the Occupational Profile for FAECAL SLUDGE TREATMENT PLANT OPERATOR level 1, Training Modules, Test Items were developed by combined panels of instructors and job practitioners, guided by Facilitators.

4.4 Methodology

The rationale for the Assessment and Training Package development was to link Vocational Education and Training to the real world of work by bridging Occupational Standards to Training Standards through industry-led Standards-Based Assessment.

Active participation of both instructors and job practitioners' panels consolidated the development philosophy.

The panelists worked as teams in workshop settings complemented by off-workshop field research and literature review activities including international benchmarking.

Development panels

The participating panels of Job Practitioners/ Instructors required at different stages were constituted by members from the following organizations:

No.	Name	Institution/ organization
	Profiling stage [MAY 2018]	
1)	**James Ojoatre**	Ministry of Water and Environment-NUWS
2)	**Tugume Mark**	Ministry of Water and Environment-NUWS
3)	**Nakagiri Anne**	Kyambogo University Department of Civil and Environmental Engineering

4.4 Facilitator team

This Assessment and Training Package was reviewed by a Facilitator team listed below:

1. **Team Leader** – Nakagiri Anne Kyambogo University/Consultant

   Facilitators – Kyarizi Lovance Directorate of Industrial Training

2. **Compiled by**- Kyarizi Lovance Directorate of Industrial Training

3. **Coordinated by** –Ms Noeline Komugisha Ag. Deputy Director/QS Dept., DIT