

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH**



ASSESSMENT PLAN FOR NTA LEVEL 4 SEMESTER 1
(Basic Technician Certificate Course in Medical Laboratory Sciences)

Ministry of Health
Government City, Mtumba
Afya Road,
P. O BOX 743
40478 DODOMA.
Phone No: +255 026 – 2323267
Email: ps@afya.go.tz
Website: <https://www.moh.go.tz>

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LIST OF ABBREVIATIONS

ACD	-	Acid Citrate Dextrose
AIDS	-	Acquired Immunodeficiency Syndrome.
BS	-	Blood Slide
CA	-	Continuous Assessment
CBET	-	Competence Based Education Training
CD	-	Compact Disc
CPD	-	Citrate Phosphate Dextrose
CPDA	-	Citrate Phosphate Dextrose Adenine
DECOHAS	-	DECCA College of Health and Allied Sciences
EDTA	-	Ethylene Diamine Tetraacetic Acid
HIV	-	Human Immunodeficiency Virus.
HLPC	-	Health Laboratory Practitioners' Council
HLS	-	Health Laboratory Sciences
ISBN	-	International Standard Book Number
KOH	-	Potassium Hydroxide
MLT	-	Medical Laboratory Technician
MoH	-	Ministry of Health
MRDT	-	Malaria Rapid Diagnostic Test
MS	-	Microsoft Word
MUHAS	-	Muhimbili University of Health and Allied Sciences
NACTVET	-	National Council for Technical and Vocational Education and Training
NTA	-	National Technical Awards
OSPE	-	Objective Structured Practical Examination
PEP	-	Post Exposure Prophylaxis or Post Exposure Procedure
pH	-	Potential of Hydrogen ions
PHLB	-	Private Health Laboratories Board
PPE	-	Personal Protective Equipment
PPM	-	Planned Preventive Maintenance
PR	-	Practical
QC	-	Quality Control.
SOP	-	Standard Operating Procedures
spp	-	Species
TACoHAS	-	Tanga College of Health and Allied Sciences
TAT	-	Turn Around Time
TB	-	Tuberculosis
WR	-	Written
ZN	-	Ziehl Neelsen
MOCOHAS	-	Morogoro College of Health and Allied Science

HTIs - Health Training Institutions

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The development of these Assessment Plans for the Basic Technician Certificate (NTA level 4) in Medical Laboratory Sciences programme is an outcome of collaborative efforts of the Ministry of Health (MoH), National Council for Technical and Vocational Education and Training (NACTVET) and tutors from various Health Training Institutions.

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Dr. Loishooki Saitore Laizer
Director of Human Resources Development

EXECUTIVE SUMMARY

The assessment plans, included in this document, have been prepared by the Ministry of Health in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) to assist and guide the implementation of the curriculum for Basic Technician Certificate (NTA level 4) in Medical Laboratory Sciences

The plans are meant to facilitate and harmonize the assessment of learning outcomes among students across the country. The learning outcomes stipulated within the NTA level 4 curriculum shall be the basis of the assessment of the student competences. The assessors are required to use the assessment plan relevant for each module to assess learning outcomes stipulated within the Basic Technician certificate (NTA level 4) in Medical Laboratory Sciences curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This document contains assessment plans for six (6) modules of semester I and five (5) modules for semester II as stipulated in the curriculum for Basic Technician Certificate (NTA Level 4) in Medical laboratory sciences which was approved by the NACTVET in May, 2022 to be implemented starting in the academic year 2022/2023 until the next review of the curriculum.

MODULE CODE: MLT 04101

MODULE NAME: Laboratory Instrumentation

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT 04101 Laboratory Instrumentation

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling Outcomes	Sub-enabling outcomes
6.1 Use skills of laboratory instruments / equipment in performing laboratory procedures according to instruction manual	6.1.1 Describe basic instruments and equipment used in laboratory investigations
	6.1.2 Use basic instruments and equipment for laboratory investigations according to manufacturer/instruction manuals
	6.1.3 Apply knowledge and skills of laboratory instrumentation to monitor performance of laboratory instruments /equipment
6.2 Apply skills in care of basic laboratory instruments/equipment	6.2.1 Describe procedures for caring of basic laboratory instruments/equipment
	6.2.2 Apply procedures for caring of basic laboratory instruments/equipment
	6.2.3 Apply skills of instrumentation to manage records for caring basic laboratory instruments/equipment
6.3 Apply skills of troubleshooting and non-conformances reporting to maintain laboratory instruments/equipment	6.3.1 Describe common problems encountered when operating laboratory basic instruments/equipment
	6.3.2 Determine the root cause (s) of malfunctioning of basic laboratory instruments/equipment
	6.3.3 Troubleshoot common problems in basic laboratory instruments / equipment
	6.3.4 Document and report non-conformances of basic laboratory instruments/equipment

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the table below will be assessed separately.

Related tasks will be assessed through assignments, theory and practical (continuous assessment tests & semester examinations). Broader tasks (indicated by √ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed							
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams			
1.	Sub-enabling Outcome: 6.1.1 Describe basic instruments and equipment used in laboratory investigations Related tasks:					CA		SE	
						35		21	
						TH	PR	TH	PR
	a) Explain principles of operating basic instruments and equipment			√		√		√	
	b) List basic laboratory equipment (Microscope, Colorimeter, Centrifuge, pH meter, Refrigerator, Hot air oven, Autoclave, Incubator, Haematocrit Centrifuge, Weighing balance, Water bath, Glucometer, Haemoglobinometer, Mixer/shaker, Haemocytometer, Urine analyzer and Westergreen tube)	√				√		√	
	c) List basic laboratory instruments (Laboratory wares, Tally counter, Thermometer, Micropipette, Timer, Spirit lamp, Bunsen burner, WBC differential counter and Westergreen rack)	√				√		√	
	d) Explain uses of each instrument and equipment			√		√		√	
	e) Explain limitations of each instrument and equipment			√		√		√	
	f) Describe the advantage and disadvantages of basic glass and plastic ware (Flasks, cylinders, pipettes and test tubes, bottles)			√		√		√	

	g) Explain limitations of each glass and plastic ware			√		√		√	
2.	Sub-enabling Outcome: 6.1.2 Use basic instruments and equipment for laboratory investigations according to manufacturer/instruction manuals Related tasks:								
	a) Explain procedures of operating basic laboratory equipment/instruments (microscopes, centrifuges, refrigerators, weighing balances, water baths, incubators, hot air ovens/sterilizers, colorimeter, pH meter, autoclave, distiller, micropipette and sphygmomanometer)			√		√		√	
	b) Operate instrument and equipment according to manufacturer instruction, manuals and/or SOPs		√				√		√
	c) Apply safety measures when operating basic laboratory instruments and equipment		√				√		√
3.	Sub-enabling Outcome: 6.1.3 Apply knowledge and skills of laboratory instrumentation to monitor performance of laboratory instruments /equipment Related tasks								
	a) Explain the significance of monitoring performance of laboratory instruments/equipment			√		√		√	
	b) Describe verification of instruments/equipment's and glass, plastic ware before use			√		√		√	
	c) Use performance monitoring tools (the temperature chart, quality control chart, maintenance log)		√				√		√
4	Sub-enabling Outcome: 6.2.1 Describe procedures for caring of basic laboratory instruments/ equipment Related tasks								
	a) Explain care of basic laboratory instruments/equipment			√		√			
	b) List the advantages of caring laboratory instruments/equipment	√						√	
	c) List the disadvantages of mishandling laboratory instruments/equipment	√				√			

	d) List required materials for care of basic laboratory equipment/instruments	√					√	
5	Sub-enabling Outcome: 6.2.2 Apply procedures for caring of basic laboratory instruments/equipment Related tasks							
	a) Locate materials for care of basic equipment and instruments		√			√		√
	b) Perform care for basic laboratory equipment and instruments as per maintenance log		√			√		
	c) Document care of basic laboratory equipment/instruments in respective equipment maintenance logs	√			√			
6	Sub-enabling Outcome: 6.2.3 Apply skills of instrumentation to manage records for caring basic laboratory instruments/equipment Related tasks:							
	a) Keep records for caring basic laboratory equipment/instruments		√			√		
	b) Evaluate records for caring basic laboratory equipment/instruments			√	√			
	c) Document non conformances for basic laboratory equipment/instruments			√	√			
7	Sub-enabling Outcome: 6.3.1 Describe common problems encountered when operating basic laboratory instruments and equipment Related tasks:							
	a) List common problems which encounter operation of basic laboratory equipment/instruments (overheating, breakage, leakage, non- functioning and mal-functioning)	√			√		√	
	b) Explain causes of each problem (overheating, breakage, leakage, non- functioning and mal-functioning)			√	√			
	c) Explain effects of each problem (overheating, breakage, leakage, non- functioning, mal-functioning)			√		√	√	
	6.3.2 Determine the root cause(s) of malfunctioning of							

	basic laboratory instruments and equipment Related tasks:							
	a) Retrieve records for care of basic laboratory equipment and instruments		√			√		
	b) Check external power supply connections (plugs, sockets, wire integrity, leakage, Adapters, UPS)		√				√	
	c) Retrieve equipment and instruments occurrence log for history of the fault		√				√	
	d) Retrieve equipment and instrument operation manuals for possible causes		√				√	
	e) Consult expert if problem persists	√				√		
	6.3.3 Troubleshoot common problems in basic laboratory instruments and equipment Related tasks							
	a) Demonstrate how to avoid extended overheating of laboratory instruments and equipment (maintain cool temperatures, use protected adapters, distance from the wall, unblocking vents and use of lubricants)		√				√	
	b) Demonstrate how to overcome Non-functioning laboratory instruments and equipment (check power connection, consult instruction manual and consult expert)		√				√	
	c) Demonstrate how to overcome Mal-functioning laboratory instruments and equipment (re-start, check leakage, follow proper operating procedures, consult instruction manuals)		√				√	
	6.3.4 Apply skills of instrumentation to document and report non-conformances of basic laboratory instruments and equipment Related tasks							
	a) Explain importance of documenting equipment non conformances			√		√		√
	b) Fill corrective action log sheet		√				√	√
	c) Report non-conformances to respective authority			√		√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

a) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.2 Practical Test Format

- There will be two Continuous Assessment Practical tests which will contribute 25% of the module weight
- The practical questions will be set from the tasks which address skills and/or wider attributes present in the CA and candidates will be required to answer ALL.
- The practical continuous assessment tests will be conducted for three (3) hours and assessed by using checklists.
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks.
- Total marks for these examinations will be 100% and converted to 25%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.3.3 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 20%.

4.4 Practical Semester Examination format

- There will be a practical semester examination which will contribute 40% of the module weight
- The practical questions will be set from the tasks which address skills and wider attribute present in the SE and candidates will be required to answer ALL
- The practical examination will be conducted for three (3) hours and assessed by using checklists
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks
- Total marks for the examinations will be 100% and converted to 40%

Module Code: MLT04102

Module Name: General Human Anatomy and Physiology

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1.0. INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04102 General Human Anatomy and Physiology

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (✓) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (✓) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling outcome	Sub-enabling outcome
5.1 Apply concept of structural organization of the body, body fluids, blood and blood forming organs to diagnose diseases.	5.1.1 Describe structural organization and function of human body
	5.1.2 Apply knowledge of structure and functions of blood and blood forming organs to diagnose diseases.
	5.1.3 Apply knowledge of structure and function of lymphatic system and body fluids to diagnose diseases.
5.2 Apply skills of cardiovascular and respiratory systems to diagnose diseases	5.2.1 Apply knowledge of structure of cardiovascular systems to diagnose diseases
	5.2.2 Apply knowledge of structure of circulatory systems to diagnose diseases
	5.2.3 Apply skills of structure of cardiovascular systems to diagnose diseases
	5.2.4 Describe structure and function of respiratory systems
	5.2.5 Apply knowledge of respiratory systems to diagnose diseases
5.3 Apply skills of nervous system and sensory organs to diagnose human diseases	5.3.1 Apply knowledge of structure and function of central nervous system to diagnose diseases
	5.3.2 Apply knowledge of structure and function of sensory organs to diagnose diseases
	5.3.3 Employ knowledge of human anatomy to collect specimens from sensory organs
5.4 Apply skills of musculoskeletal and endocrine systems	5.4.1 Describe structure and function of skeletal system in human body
	5.4.2 Describe structure and function of muscular system in human body

to diagnose diseases	5.4.3 Describe structure and function of endocrine system in human body
	5.4.4 Apply knowledge of musculoskeletal and endocrine systems to diagnose human diseases
5.5 Apply skills of gastrointestinal and genitourinary systems to diagnose diseases	5.5.1 Describe structure and function of digestive system
	5.5.2 Describe structure and function of urinary system
	5.5.3 Apply knowledge of structure of digestive and urinary systems to diagnose
	5.5.4 Describe structure and function of male and female reproductive system
	5.5.5 Apply knowledge and skills of human structural organisation to collect specimens from male and female reproductive system

HOW TO USE THIS ASSESSMENT PLAN?

Each task/competence specified in the Table below will be assessed separately.

Related tasks will be assessed through assignments, theory and practical (continuous assessment tests & semester examinations). Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

	Competence to be Assessed							
	Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams			
Sub-Enabling Outcomes					CA		SE	
5.1.1 Describe structural organization and function of human body					54		50	
Related tasks:					TH	OSPE	TH	OSPE
a) Describe general concept of anatomy and physiology			√		√			
b) Describe body region and anatomical plains			√		√	√	√	√
c) Describe different types of body movements			√		√		√	
d) Describe structural organization levels of human body			√		√		√	
e) Describe structure of different types of cells			√		√		√	
f) Describe functions of the cell and cell components			√		√		√	

g) Describe structure and function of connective tissue (bone, blood, cartilage, loose connective tissue, dense regular connective tissue, dense irregular connective tissue and adipose tissue)			√		√		√	
h) Describe structure and function of muscle tissue			√		√		√	
i) Describe structure and function of nervous tissue			√		√		√	
Sub-enabling outcome 5.1.2 Apply knowledge of structure and functions of blood and blood forming organs to diagnose diseases Task								
a) Define terms (blood, haemopoiesis)	√				√			
b) List the composition of blood (plasma, red blood cells, white blood cells and platelets)	√				√		√	
c) Explain general functions of blood			√		√		√	
d) List different types of ABO and rhesus blood group systems	√				√			
e) List organs involved in blood formation (bone, liver, kidney, spleen)	√				√		√	
f) List diseases affecting blood forming organs	√				√		√	
g) Identify organs involved in blood formation (bone, liver, kidney, spleen)	√				√		√	

Sub-enabling outcome 5.1.3 Apply knowledge of structure and function of lymphatic system and body fluids to diagnose diseases Task								
a) Define terms lymph and body fluid	√				√			
b) Describe body fluid compartments and its constituents			√		√		√	
c) Identify the lymphatic cells (macrophages, epithelial cells, dendritic cells and lymphocytes)	√		√		√		√	
d) Identify the lymphatic vessels (lymphatic capillaries, lymphatic collecting vessels, lymphatic trunk and lymphatic duct)	√		√		√		√	
e) Describe the lymphatic draining system			√		√		√	
f) Explain functions of the lymphatic system			√		√		√	
g) List common diseases affecting the lymphatic system (lymphangitis, filariasis, lymphoedema, lymphadenopathy, lymphomas, tonsillitis and splenomegaly)	√				√		√	
h) Identify organs involved in lymphatic system (spleen, tonsils, lymph nodes and thymus)	√				√		√	
5.3.1 Apply knowledge of structure and function of central nervous system to diagnose diseases Related tasks:								

a) Describe structural organization of the central nervous system			√		√		√	
b) Describe structure and functions of the brain tissue			√		√		√	√
c) Describe structure and function of the meninges			√		√		√	
d) Describe ventricular system and cerebrospinal fluid flow			√		√		√	
e) Describe cranial nerves			√		√		√	
f) Describe functions of the cranial nerves			√		√		√	
g) Describe the structure and function of the spinal cord			√		√		√	
h) Describe structure and functions of peripheral nervous system			√		√		√	
Sub-enabling outcome 5.4.1 Describe structure and function of skeletal system in human body Related tasks:								
a) Describe the structural organization and functions of skeleton			√		√	√	√	√
b) Describe structural organization and functions of the skull			√		√	√	√	√
c) Describe structural organization and functions of vertebral column			√		√	√	√	√
d) Describe structural organization and functions of the thoracic cage			√				√	√
e) Describe structural organization and function of the shoulder, girdle and upper limb			√			√	√	√

f) Describe structural organization and functions of the pelvic girdle and lower limb			√		√	√	√	√
g) Describe structural organization and function of joints			√		√			
h) Describe types and range of movement at synovial joints			√		√		√	
Sub-enabling 5.4.2 Describe structure and function of muscular system in human body Related tasks:								
a) Describe muscles of the upper limb basing on the following aspects (name, origin, insertion, nerve supply and action)			√		√		√	
b) Describe muscles of the head and neck basing on the following aspects (name, origin, insertion, nerve supply and action)			√		√		√	
c) Describe muscles of the lower limb basing on the following aspects (name, origin, insertion, nerve supply and action)			√		√		√	
Sub-enabling outcome 5.4.3 Describe structure and function of endocrine system in human body Related tasks:								
a) Describe the structural organization of the endocrine system			√		√		√	
b) Describe structure and functions of hypothalamus gland			√		√		√	

c) Describe structure and functions of the pituitary gland			√				√	
d) Describe structure and functions of adrenal gland			√				√	
e) Describe functions of pancreatic islets gland			√		√		√	
f) Explain functions of pineal body gland			√		√			
g) Describe structure and functions of the thyroid and parathyroid glands			√		√		√	
Sub-enabling outcome 5.4.4 Apply knowledge of musculoskeletal and endocrine systems to diagnose human diseases Related tasks:								
a) List common diseases affecting skeletal system	√				√		√	
b) List common diseases affecting muscular system	√				√			
c) List common diseases affecting endocrine system	√				√		√	
d) List common tests used to diagnose musculoskeletal diseases.	√				√		√	
e) List common tests used to diagnose endocrine diseases.	√				√		√	
f) Locate muscles of the upper limb where blood vessels (media cubital vein, cephalic vein and basilic vein) lie.		√				√		√
g) Locate muscles of the lower limb where femoral vein lies.		√				√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

a) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)

- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.2 OSPE Test format

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for this examination will be 100% which will be converted to 10%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and OSPE components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours

4.3.3 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)

- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)
- In all sections candidates shall be required to answer **ALL** questions.
 - Total marks for each examination will be 100% and converted to 40%.

4.3.4 OSPE Semester Examination

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for each examination will be 100% and converted to 20%.

MODULE CODE: MLT 04103

MODULE NAME: Laboratory Safety and Waste Management

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT 04103 Laboratory Safety and Waste Management

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

2.1 Apply aseptic techniques in laboratory practices to minimize contamination	2.1.1	Apply knowledge and skills of safety to maintain aseptic technique in protection of the laboratory working environment
	2.1.2	Apply protective gears in laboratory practices to maintain safety
	2.1.3	Apply 6S laboratory principles in improving working area
	2.1.4	Apply principles of sterilization in conducting laboratory practices
2.2 Apply accidents	2.2.1	Describe safety rules in laboratory practices

management skills to ensure safety of the laboratory personnel	2.2.2	Describe types of hazards and their common sources in the laboratory
	2.2.3	Apply skills of safety tools in the laboratory practices
	2.2.4	Apply firefighting techniques in fighting laboratory accidents
	2.2.5	Describe concept of Post Exposure Prophylaxis (PEP) in the laboratory
2.3 Apply waste management techniques to maintain safety in laboratory practices	2.3.1	Apply skills of waste management to distinguish laboratory wastes
	2.3.2	Describe different methods of laboratory waste disposal
	2.3.3	Use different methods of laboratory waste disposal to maintain safety in working environment
2.4 Apply personal protective equipment to maintain safety in the laboratory premises	2.4.1	Describe personal protective equipment used to maintain safety in laboratory premises
	2.4.2	Demonstrate use of personal protective equipment to maintain safety in laboratory premises
	2.4.3	Apply IPC guidelines to manage personal protective equipment in health facilities

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

Related tasks will be assessed through assignments, theory and practical (continuous assessment tests & semester examinations). Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed							
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Examinations			
1.	Sub-enabling Outcome: 2.1.1 Apply knowledge and skills of safety to maintain aseptic technique in protection of the laboratory working environment Related tasks:					CA		SE	
						70		51	
						THEORY	OSPE	THEORY	OSPE
	a) Describe the concept of aseptic technique in working environment			✓		✓		✓	
	b) Explain the importance of using aseptic technique in working environment			✓				✓	
	c) Describe different types of aseptic techniques used in laboratory practices (disinfection, sterilization, decontamination, sanitization, asepsis and antisepsis)			✓		✓		✓	
	d) Explain types of solutions used to attain aseptic techniques (5% Lysol, 70% Methylated spirit, Sodium hypochlorite, Tincture of Iodine etc)			✓		✓		✓	
	e) Identify hazards associated with solutions used to attain aseptic techniques (irritation, burns, flammability and explosive)	✓				✓			
	f) Cleans blood collection sites using antiseptic as per SOP		✓				✓		✓
	g) Disinfect working bench and floor using appropriate disinfectant		✓				✓		✓

	h) Wash hands as needed during laboratory practices as per SOP		√				√		√
	i) Decontaminate laboratory wares as per SOP		√				√		
	j) Sterilize laboratory wares as per SOP (dry heat, moist heat and chemical)		√				√		
2.	Sub-enabling Outcome: 2.1.2 Apply protective gears in laboratory practices to maintain safety Related tasks:								
	a) Describe types of protective gears used in laboratory practice (<i>gloves, lab coats, goggles, masks, eye wears, gumboot, apron</i>)			√				√	
	b) Explain importance of protective gears as used in laboratory practices			√		√			
	c) Don and doff protective gears during laboratory practices as per SOP (<i>gloves, lab coats, goggles, masks, eye wears, gumboot, apron</i>)		√				√		√
3.	Sub-enabling Outcome: 2.1.3 Apply 6S laboratory principles in improving working area Related tasks								
	a) Define the 6S methodology as applied in laboratory practices	√				√			
	b) List 6S as applied in laboratory practices (Sort/Select, Set, Shine, Standardize, Sustain, Safety)	√						√	
	c) Explain the concept of 6S as applied in laboratory practices			√				√	
	d) Describe the importance of 6S laboratory principles in working area			√		√			
	e) Describe application of 6S laboratory principles in working area			√				√	
	f) Sort items in the laboratory as required/priority		√				√		
	g) Set items in the laboratory as required/priority		√				√		
	h) Shine, Standardize and Sustain items as required/priority		√				√		
	i) Arrange laboratory items in regards to safety		√				√		
4	Sub-enabling Outcome: 2.1.4 Apply principles of sterilization in conducting								

	laboratory practices								
	Related tasks:								
	a) Define the term sterilization	√				√			
	b) Explain the importance of sterilization			√				√	
	c) Describe methods of sterilization (heat, chemical, irradiation, filtration)			√		√		√	
	d) Explain controls used in sterilization (chemical indicators, biological indicators)			√				√	
	e) Sterilize laboratory materials as per SOP		√				√		
5	Sub-enabling Outcome: 2.2.1 Describe safety rules in laboratory practices Related tasks:								
	a) Explain safety rules as applied in laboratory practices			√		√			
	b) Explain importance of safety rules as applied in laboratory practices			√		√		√	
	c) List safety rules applied in the laboratory practices	√						√	
	d) Practice safety rules in the laboratory		√				√		
6	Sub-enabling Outcome: 2.2.2 Describe types of hazards and their common sources in the laboratory Related tasks:			√		√		√	
	a) Describe the concept of laboratory hazards			√		√			
	b) Explain the main categories of laboratory hazards (Biological, Physical and Chemical)			√				√	
	c) List common sources of laboratory hazards	√				√			
	d) Explain different types of laboratory hazards			√		√		√	
	e) Explain biohazard signs			√		√		√	
	f) Describe the use of Material Safety Data Sheet			√		√			
7	Sub-enabling Outcome: 2.2.3 Apply skills of safety tools in the laboratory practices Related tasks:								
	a) Define the terms (first aid, first aid kit, spill kit, emergency shower, eye wash, biosafety cabinet and safety hood)	√						√	

	b) List components of first aid kit	√					√	
	c) List components of spill kit	√				√		
	d) Explain the function of each component of first aid kit and spill kit			√		√		√
	e) Explain importance of laboratory safety tools			√		√		√
	f) Use laboratory safety tools when required		√				√	
	g) Monitor effectiveness of safety tools in the laboratory		√				√	
8	Sub-enabling Outcome: 2.2.4 Apply firefighting techniques in fighting laboratory accidents Related tasks:							
	a) Define fire, fire fighting	√				√		
	b) List classes of fire (Class A, B, C, D, E)	√				√		√
	c) Explain means of detecting fire/smoke (alarm, smell, electronic detector, visual)			√		√		√
	d) List firefighting equipment (fire extinguisher, sand bucket, blanket, water pipe/bucket)	√						√
	e) Explain methods of firefighting (Direct method, Indirect method, Combined method)			√		√		√
	f) Monitor effectiveness of firefighting equipment in the laboratory accidents		√			√		
	g) Extinguish fire using available firefighting equipment in the laboratory (fire extinguisher, sand basket, water horse)		√			√		
9	Sub-enabling Outcome: 2.2.5 Describe concept of Post Exposure Prophylaxis (PEP) in the laboratory Related tasks:							
	a) Explain Post Exposure Response/Procedures			√		√		√
	b) Explain Post Exposure Prophylaxis (PEP)			√		√		√
	c) List the types of exposure to infections (needle stick injury, skin cut, contact of mucous membrane or non-intact skin)	√				√		√
	d) List personnel at health facility who are at risk for exposure (Medical laboratory personnel, morticians, Nurses, clinicians, hospital housekeeping staff, hospital laundry workers, waste	√				√		

	disposal workers, Patient/clients and community)								
	e) Explain the levels of risk (Low, moderate and High risks)			√		√			
	f) Outline criteria of categorizing the levels of risks in the laboratory	√						√	
	g) Describe the main steps in post-exposure response/procedure			√		√			
	h) Describe post-exposure protocol for occupational and non-occupational exposures			√		√		√	
	i) Determine levels of risk in the laboratory	√				√			
10	Sub-enabling Outcome: 2.3.1 Apply skills of waste management to distinguish laboratory wastes Related tasks:								
	a) Define laboratory wastes	√				√			
	b) List waste materials generated in the laboratory	√				√			
	c) Describe each type of laboratory wastes			√		√		√	
	d) Explain the importance of laboratory wastes segregation			√				√	
	e) Classify types of containers for wastes segregation in the laboratory			√		√		√	
	f) Segregate laboratory wastes (highly infectious, infectious, non-infectious and sharps)				√		√		√
11	Sub-enabling Outcome: 2.3.2 Describe different methods of laboratory waste disposal Related tasks:								
	a) Define waste disposal	√				√			
	b) Explain importance of waste disposal			√				√	
	c) List methods of waste disposal	√				√			
	d) Describe methods used to dispose laboratory wastes			√		√		√	
12	Sub-enabling Outcome: 2.3.3 Demonstrate different methods of laboratory waste disposal Related tasks:								
	a) Select method of waste disposal (Incineration, burn and bury)		√			√			
	b) Select appropriate means of transporting/carrying wastes to the disposal sites		√			√			

	c) Dispose wastes according to nature of wastes		√				√		√
	d) Decontaminate bins used to hold laboratory waste using appropriate disinfectant		√				√		
13	Sub-enabling Outcome: 2.4.1 Describe personal protective equipment used to maintain safety in laboratory premises Tasks:								
	a) Define personal protective equipment	√				√			
	b) List personal protective equipment	√				√			
	c) Explain the function of each personal protective equipment			√		√		√	
14	Sub-enabling Outcome: 2.4.2 Demonstrate use of personal protective equipment to maintain safety in laboratory premises Related tasks:								
	a) Identify PPE required for a specific laboratory activity		√				√		√
	b) Wear personal protective equipment (Gloves, Lab coat, Gum boot, Masks, Goggles) as per SOP		√				√		√
	c) Remove personal protective equipment (Gloves, Lab coat, Gum boot, Masks, Goggles) as per SOP		√				√		√
15	Sub-enabling Outcome: 2.4.3 Apply IPC guidelines to manage personal protective equipment in health facilities Tasks:								
	a) Explain the term Infection Prevention and control (IPC) guideline			√		√		√	
	b) Use IPC guideline to manage availability of PPE in the laboratory		√				√		
	c) Use IPC guideline to dispose used PPE		√						√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

a) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.3 OSPE Test format

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) hands on questions that conducted for duration of not more than 7 minutes per station and assessed by using checklists.
- Total marks for this examination will be 100% which will be converted to 10%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and OSPE components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours

4.3.4 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
 - ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
 - iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
 - iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
 - v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)
- In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 40%.

4.3.4 OSPE Semester Examination

- The examination will contribute 20% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) hands on questions that conducted for duration of not more than 7 minutes per station and assessed by using checklists.
- Total marks for each examination will be 100% and converted to 20%.

MODULE CODE: MLT 04104

MODULE NAME: Communication and life skills

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Technology.

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04104 Communication and life skills

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling outcomes	Sub-enabling outcomes
1.1 Apply customer care skills to provide laboratory services to the clients	1.1.1 Use interpersonal relationship in developing rapport with customers
	1.1.2 Use request forms in verifying client information during sample collection
	1.1.3 Apply health laboratory guidelines in attending clients during service provision
	1.1.4 Employ procedures of professional ethics in acquiring client consent when collecting sample.
	1.1.5 Apply principles of turnaround time (TAT) in providing health laboratory services to satisfy customers
1.2 Apply communication skills in customer care to provide laboratory services.	1.2.1 Employ types of communication in working environment to improve laboratory services.
	1.2.2 Use communication process in working environment to provide health services.
	1.2.3 Describe barriers affecting communication in working environment
	1.2.4 Employ effective communication skills in attending clients
	1.2.5 Apply writing skills in improving communication at working environment.
	1.2.6 Apply sign language to communicate with special group to provide laboratory services
1.3 Apply life skills in	1.3.1 Apply negotiation life skills in establishing relationship in a

customer care to improve quality of health services	society
	1.3.2 Describe the concepts of life skills and self-management in improving health services
	1.3.3 Use personal development plan in attaining a desired end in health services
	1.3.4 Apply self-management skills in improving health work operations

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment and theory tests/examination.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				No. of tasks provided under Continuous Assessment and Semester Exams	
		Knowledge	Skills	Understanding	Wider attributes		
1.	Sub-enabling Outcome: 1.1.1 Use interpersonal relationship in developing rapport with customers Related tasks:					CA	SE
						72	57
						THEORY	ORAL
	a) Define the term rapport	✓				✓	
	b) Describe elements of interpersonal relationships (<i>greetings, creating rapport, maintaining integrity</i>)			✓			✓
	c) Explain the importance of interpersonal relationships			✓			✓
	d) Demonstrate skills of interpersonal relationships		✓				✓

2.	Sub-enabling Outcome: 1.1.2 Use request forms in verifying client information during sample collection						
	Related tasks:						
	a) Explain client identifiers			√		√	√
	b) Explain the significance of verifying client identifiers			√		√	√
	c) Describe the importance of relating client's information against request form			√		√	√
	d) Confirm client information on the request form (<i>Address, name, age, sex and hospital identification number, nationality, tribe</i>)		√			√	
3.	Sub-enabling Outcome: 1.1.3 Apply health laboratory guidelines in attending clients during service provision						
	Related tasks						
	a) Describe factors to be considered when attending clients (<i>privacy room, chair, open/closed outlet door</i>)			√		√	√
	b) Explain the importance of attending clients as per laboratory guidelines			√			√
	c) Prioritise handling of clients (<i>e.g. Age, condition, First In First Served</i>)		√			√	√
	d) Describe challenges for attending clients (<i>complains on delays in service – First In First to be Served, beliefs on blood collection, language barrier, fear of the patient, poor customer care</i>)			√		√	√
	e) Create conducive environment for attending clients		√			√	
4	Sub-enabling Outcome: 1.1.4 Employ procedures of professional ethics in acquiring client consent when collecting sample.						
	Related tasks:						
	a) Define the term consent	√				√	
	b) Explain types of consent (<i>Informed consent and Implied consent</i>)			√		√	

	c) Explain the importance of seeking consent from the client			√			√	√
	d) Describe challenges of seeking consent from the client (<i>consent denial, insufficient information, fearful, ashamed, language barrier, poor customer care, attire, age, belief, taboos, disease, trust, sex</i>)			√		√	√	√
	e) Demonstrate skills for seeking consent from the client		√			√	√	
5	Sub-enabling Outcome: 1.1.5 Apply principles of turnaround time (TAT) in providing health laboratory services to satisfy customers Related tasks:							
	a) Define turnaround time (TAT)	√				√		
	b) Explain the importance of turnaround time			√			√	√
	c) Explain elements of turnaround time (<i>Perform test immediately, Plan work flow, Communicate results in appropriate time</i>)			√			√	√
	d) Develop turnaround time worksheet for routine laboratory investigations (<i>Locate time, evaluate time and develop TAT worksheet</i>)		√			√		√
6	Sub-enabling Outcome: 1.2.1 Employ types of communication in working environment to improve laboratory services. Related tasks:							
	a) Define communication	√				√		
	b) Explain the importance of communication			√		√	√	√
	c) Explain types of communication (<i>Verbal, Non-verbal, Written, Visual</i>)			√		√		√
7	Sub-enabling Outcome: 1.2.2 Use communication process in working environment to provide health services. Relate tasks:							
	a) Describe elements of communication process (<i>sender, message, channel/medium, receiver and feedback</i>)			√		√		√
	b) Describe channels of communication (<i>Radio, TV,</i>			√		√		√

	Newspapers, magazines, emails, e.t.c)						
	c) Describe communication flow – Formal (<i>Upwards, Downwards, Horizontal</i>) and informal (<i>Diagonal</i>)		√		√		
	d) Explain the advantage and disadvantage of each type in communication (<i>oral, written, telephone/ mobile phones,, electronic communication</i>)		√		√		
8	Sub-enabling Outcome: 1.2.3 Describe barriers affecting communication in working environment Related tasks:						
	a) Define communication barriers	√			√		
	b) Explain barriers of effective communication (<i>language, environment, source of information, lack of clarity, gender, culture, religion, physical, technology</i>)		√		√	√	√
	c) Describe ways to overcome communication barriers		√		√		√
9	Sub-enabling Outcome: 1.2.4 Employ effective communication skills in attending clients Related tasks:						
	a) Define effective communication		√		√		
	b) Explain the importance of using effective communication skills		√		√		
	c) Describe effective communication skills (<i>telling, probing, observing, understanding, listening, use proper language and sign language</i>)		√				√
	d) Explain elements of effective communication skills (<i>listening, speaking clearly, maintaining eye contact, using proper language</i>)		√		√		√
	e) Demonstrate effective communication skill when attending clients		√			√	
10	Sub-enabling Outcome: 1.2.5 Apply writing skills in improving communication at working environment Related tasks:						

	a) Explain writing skills (Format, composition and style, structure, grammar, proofing)			√		√	√	√
	b) Explain the characteristics of effective message (Clear, concise, convincing, complete, concrete and capable of being carried out)			√		√		√
	c) Explain types of official written communication			√		√		√
	(Letters, curriculum vitae, meeting minutes, memo, notices, reports, bulletins, emails, manuals, job descriptions)							
	d) Explain the ways of improving writing skills grammatical and typographical errors (proof reading i.e. read loudly, use someone else, use computer auto-correct dictionary)			√		√	√	√
	e) Prepare official letter		√			√		
	f) Prepare curriculum vitae		√					√
	g) Prepare meeting minutes		√					√
	h) Prepare memo, notice		√			√		
	Sub-enabling outcome 1.2.6 Apply sign language to communicate with special group to provide laboratory services							
	Related tasks							
	a) Define sign language	√				√		
	b) Identify types of sign language	√						√
	c) Explain the purpose of Sign Language			√		√	√	√
	d) List characteristics of Sign Language			√		√	√	
	e) Explain the fundamental psychology and deaf culture			√		√	√	√
	f) Explain the qualities of sign language that are similar to spoken language			√		√	√	
	g) Explain the components for the identification and distinction of individual sign			√		√		√
	h) Describe barriers of Sign language in communication (Darkness, Handshape, Presence of object across between two conversation)			√		√		√

	i) Describe alphabet of fingerspell in communication			√		√		√
	j) Describe numbers and counting using finger spelling			√		√		√
	k) Explain the importance of sign language			√		√		√
	l) Describe hand shape as a means of sign in communication			√		√		√
	m) Describe sign used in different occasions (environment, people and objects)			√		√		√
	n) Demonstrate fingerspell alphabet in sign language		√				√	
	Sub-enabling outcome 1.3.1 Apply negotiation life skills in establishing relationship in a society Task							
	a) Describes types of relationships in the society (Interpersonal, Social group, Professional)			√				√
	b) Outline factors which influence relationships (Examples: compatibility, communication, honesty, stay calm, forgiving, smile, time)			√		√	√	
	c) Outline the core values of relationships (Examples: Trust, honesty, loyalty, faithfulness, respect, accountability, companionship, empathy, communication)			√		√	√	√
	d) Define the term conflict	√				√		
	e) Describe causes of conflicts			√		√		√
	f) Describe effects of conflicts			√		√		
	g) Explain strategies for conflict resolution behaviours (Collaborating, Competing, Compromising, Accommodating, Avoiding)			√				√
	h) Define negotiation skills	√						√
	i) Outline benefits of negotiation skills			√		√	√	
	j) List factors to consider during negotiations (Personal presentation, stress control, ego, fact gathering,	√				√	√	√

	conducive meeting place)						
	k) Explains the importance of negotiation			√		√	√
	Sub-enabling outcome 1.3.2 Describe the concepts of life skills and self-management in improving health services Task						
	a) Describe effective negotiation skills (Examples: Active listening, Problem solving, Time management, Decision making ability, Emotional control, Verbal and non-verbal communication, Collaboration)			√		√	√
	b) Define terms (<i>life skills, self-management and society</i>)	√				√	
	c) Describe the components of life skills (Self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, Problem solving, Effective communication, Interpersonal relationship, Coping with stress, Coping with emotions)			√		√	√
	d) Explain the components of self – management (Self-monitoring, Self-evaluation and Self enforcement)			√		√	√
	e) Describe conceptual skills of living with one-self and others			√		√	√
	f) Outline the benefits of self-management (Saves cost, Saves time, Increases productivity, Sensitizes commitment, Motivates working spirit, Encourages innovation)			√		√	√
	g) Describe self-management strategies			√		√	√
	Sub-enabling outcome 1.3.3 Use personal development plan in attaining a desired end in health services Related task						
	a) Explain Johari window concept			√		√	√
	b) Outline factors affecting career development (team			√		√	√

	contribution, communication, time management, relationships)						
	c) Develop a personal development plan focusing on strengths and weaknesses			√			√
	Sub-enabling outcome 1.3.4 Apply self-management skills in improving health work operations Related task						
	a) Demonstrate time management skills		√				√
	b) Prepare a “to do list”		√				√
	c) Prioritize tasks		√			√	√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

b) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and OSPE components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours

4.3.5 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)
- In all sections candidates shall be required to answer **ALL** questions.

Oral Examination

- i. There shall be one (1) oral examination
- ii. Questions will be set by an institution from the tasks with understanding components in the specific module
- iii. Institution shall prepare three (3) questions and candidates allowed to answer one after another loudly for fifteen (15) minutes
- iv. Oral questions shall be set together with their correct responses and shall be rated with the following rating score 0, 1,2,3 and 4
- v. Oral questions shall be scenario based, capturing problem-solving skills
- vi. The scores awarded by examiners shall not vary by more than one grade from the rating scale. If the variation exceeds one grade, and a consensus cannot be reached between examiners; the Head of Department shall make a final judgement
- vii. The candidate will have a choice to start with any question he/she likes.
- viii. Total scores will be calculated to make up 100% which will be converted to 10%

ORAL EXAMINATION SCORING FORM FOR NTA LEVEL 4

Name of student

NACTVET Registration number

Date

Question No	Question	Answers	Rating Scale					Examiner's remarks
			0	1	2	3	4	
Total								

Key

0.....Poor (Question wrongly answered)

1.....**Fair** (Question answered by giving 25% of the required information or question answered incorrectly but occasionally adequate)

2.....**Satisfactory** (Question answered correctly by giving only 50% of the required information or answered partially)

3.....**Good** (Question answered correctly by giving 75% of the required information or answered in most of the content but not completely)

4.....**Excellent** (Question answered correctly and precisely in proper sequence (if required))

Examiner 1 name

Signature

Examiner 2 name

Signature

MODULE CODE: MLT 04105

MODULE NAME: Laboratory Ethics and Code of Conduct

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical laboratory sciences

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04105 laboratory Ethics and Code of Conduct

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling Outcomes	Sub-enabling Outcomes
1.4 Apply customer care skills to provide laboratory services to the clients	1.1.3 Apply health laboratory guidelines in attending clients during service provision
1.4 Employ ethical conduct in customer	1.4.1 Apply the concept of confidentiality and privacy in providing laboratory services

Enabling Outcomes	Sub-enabling Outcomes
care to provide laboratory services	1.4.2 Apply personal presentation and attire in conducting laboratory practices
	1.4.3 Use health laboratory guidelines in improving health care delivery

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment and theory tests/examination.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				38			
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester			
1.	Sub-enabling Outcome:					CA		SE	
	1.1.3 Apply health laboratory guidelines in attending clients during service provision					18		13	
	Tasks:								
	a) Describe factors to be considered when attending clients (<i>privacy room, chair, open/closed outlet door</i>)			✓		✓		✓	
	b) Explain the importance of attending clients as per laboratory guidelines			✓		✓		✓	
	c) Prioritise handling of clients (<i>e.g. Age, condition, First In First Served</i>)	✓				✓		✓	
	d) Describe challenges for attending clients (<i>complains on delays in service – First In First to be Served, beliefs on</i>			✓		✓			

	<i>blood collection, language barrier, fear of the patient, poor customer care)</i>								
	e) Create conducive environment for attending clients	√				√		√	
2.	Sub-enabling Outcome; 1.4.1 Apply the concept of confidentiality and privacy in providing laboratory services Tasks:								
	a) Define the terms (confidentiality, privacy)	√				√			
	b) Differentiate between confidentiality and privacy			√				√	
	c) Explain the importance of confidentiality in laboratory practices			√				√	
	d) Explain the importance of privacy in laboratory practices			√		√			
	e) Describe methods of maintaining confidentiality (protect data, give results to authorized person, restrict access to laboratory, follow procedure of releasing results)			√		√		√	
	f) Describe means of maintaining privacy (attend clients in privacy area)			√		√			
	g) Explain challenges that occur during maintenance of confidentiality and privacy in laboratory practices			√		√			
	h) List laboratory areas where confidentiality and privacy are applied (phlebotomy room, reception area, working area, dispatch area/pigeon box, result storage area)	√				√		√	
	a) Demonstrate measures of protecting patient data from access(use of password, restricting access, lockable	√				√			
3.	Sub-enabling Outcome: 1.4.2 Apply personal presentation and attire in conducting laboratory practices Tasks								
	a) Describe personal presentation and attire			√		√			
	b) Explain the importance of personal presentation and attire			√				√	
	c) List components of personal presentation and attire (proper dressing, abide with dressing code, wear identity tag, wear lab coat, closed footwear, do not consume	√				√		√	

	alcohol/un prescribed drugs at work place, do not open outlet door while putting on gloves)							
	d) Display personal presentation (attire, communication skills, smartness)	√				√		
4	Sub-enabling Outcome: 1.4.3 Use health laboratory guidelines in improving health care delivery Tasks:							
	a) List bodies regulating laboratory practices(HLPC, PHLB,ASLM,ILAC)	√				√		
	b) Explain HLPC and PHLB guidelines for laboratory practices			√			√	
	c) Outline HLPC codes of ethics (confidentiality, privacy, accountability, competency, truthfulness, personal presentation, good relationship, justice, safety protection, self-confidence and obligation to do good)	√				√		√
	d) Explain the application of health laboratory guidelines			√		√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

a) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- There shall be two written individual assignments
- Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.4.3 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination

MODULE CODE: MLT 04106

MODULE NAME: Prevention and Control of Communicable and Non-Communicable Diseases

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04106 Prevention and control of communicable and non-communicable diseases

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling Outcomes	Sub-enabling Outcomes
5.7 Describe common communicable and non-communicable	5.7.1 Describe causes of common communicable and non-communicable diseases in human
	5.7.2 Describe transmission of common communicable diseases in

diseases	human
	5.7.3 Describe prevention and control measures of common communicable and non-communicable diseases in human
	5.7.4 Describe morphological features of organisms causing common communicable diseases

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment and theory tests/examinations.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed				55			
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams			
1.	Sub-enabling Outcome: 5.7.1 Describe causes of common communicable and non-communicable diseases in human Related tasks:					CA		SE	
						12		7	
						THEORY	PRACTICAL	THEORY	PRACTICAL
	a) Define the terms disease, communicable disease and non-communicable	✓				✓			
	b) List common bacteria and diseases they cause (<i>Staphylococci spp</i> , <i>Streptococci spp</i> , <i>Mycobacterium spp</i> , <i>Escherichia spp</i> , <i>Salmonella spp</i> , <i>Shigella spp</i> , <i>Proteus spp</i> , <i>Klebsiella spp</i> , <i>Treponema spp</i> and <i>V.cholerae</i>)	✓				✓			
	c) List common viruses and diseases they cause (HIV, Hepatitis B, C, Rotavirus, Human Papilloma virus, Measles, Chicken	✓				✓		✓	

	pox)								
	d) List common parasites and diseases they cause (Entamoeba, Giardia, Wuchereria spp, Plasmodium spp, Schistosoma species, Trichuris spp, Trypanosoma brucei spp, Ascaris lumbricoides Hookworms and Strongyloides spp, Taenia spp)	√				√		√	
	e) List common non-communicable diseases (Hypertension, diabetes, anaemia, cancer, asthma)	√				√			
2.	Sub-enabling Outcome: 5.7.2 Describe transmission of common communicable diseases in human Tasks:								
	a) Define mode of transmission of diseases	√				√	NA		NA
	b) List modes of transmission of diseases (Contact, Vector, Inhalation, Water, Ingestion, Sexual, Blood)	√						√	
	c) List diseases which are transmitted through each mode of transmission	√				√		√	
3.	Sub-enabling Outcome: 5.7.3 Describe the prevention and control measures of common communicable and non-communicable diseases in human Tasks								
	a) Explain the terms (zoonotic diseases, disease prevention and disease control)	√				√			
	b) Explain methods of prevention and control of diseases (health education, environmental modification, treatment of infected cases, mass chemotherapy, personal hygiene, chemical for vector control)	√				√		√	
	c) Explain importance of preventing and controlling diseases		√			√			
4	Sub-enabling Outcome: 5.7.4 Describe morphological features of organisms causing common communicable diseases Related tasks:								
	a) Outline morphological features of common parasites (Entamoeba, Giardia, Wuchereria spp, Plasmodium spp, Schistosoma species, Trichuris spp, Trypanosoma brucei spp, Ascaris lumbricoides, Hookworms and Strongyloides spp,	√				√			

	Taenia spp)								
	b) Outline morphological features of common bacteria (Staphylococci spp, Streptococci spp, Mycobacterium spp, Escherichia spp, Salmonella spp, Shigella spp, Proteus spp, Klebsiella spp, Treponema spp)	√						√	
	c) Outline morphological features of common viruses (HIV, Hepatitis B, C, Rotavirus, Human Papilloma virus, Measles, Chicken pox	√				√		√	

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

b) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)

- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.4.4 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 20%.

MODULE CODE: MLT04207

MODULE NAME: Routine Laboratory Investigation

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

2.0. INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04207 Routine Laboratory Investigation

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (✓) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (✓) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

5.8 Apply standard operating procedures in conducting routine laboratory investigations	5.8.1 Describe routine laboratory investigations in provision of health services
	5.8.2 Apply knowledge and skills of laboratory investigation to perform routine Parasitological test
	5.8.3 Apply knowledge of laboratory investigation to perform routine Haematological tests
	5.8.4 Apply knowledge and skills of laboratory investigation to perform routine Microbiological tests
	5.8.5 Apply knowledge and skills of laboratory investigation to perform routine Clinical Chemistry test
	5.8.6 Apply principles of quality assurance in performing routine laboratory investigations
	1.1.5 Apply principles of turnaround time (TAT) in providing health laboratory services to satisfy customers

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

Related tasks will be assessed through assignments, theory and practical (continuous assessment tests & semester examinations). Broader tasks (indicated by √ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed											
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams							
						CA		SE					
1.	Sub-enabling Outcome: 5.8.1 Describe routine laboratory investigations in provision health services Tasks:					24		17					
						T H	P R C	T H	P R C				
						a) Explain laboratory investigations for routine specimens (Haemoglobin estimations, HIV rapid test, stool analysis, urine analysis, urinary pregnancy test, blood smear for haemoparasites, sputum smear for AFB, syphilis and hepatitis rapid test, urine glucose test by Benedict’s qualitative methods and reagent strips)			√		√		√
						b) Explain the significance of each routine laboratory investigations (Haemoglobin estimations, HIV rapid test, stool analysis, urine analysis, urinary pregnancy test, blood smear for haemoparasites, sputum smear for AFB, syphilis and hepatitis rapid test, urine glucose test by Benedict’s qualitative methods and reagent strips)			√		√		√
	c) Explain limitation of routine laboratory investigations			√		√		√					
2.	Sub-enabling Outcome; 5.8.2 Apply knowledge and skills of laboratory investigation to perform routine Parasitological test Tasks:												
	a) Select equipment/Instrument required for routine Parasitological investigations (microscope, centrifuge)		√							√			
	b) Select supplies/materials required for routine		√				√						

	parasitological investigations (glass slide, stains, cover slips, reagent strips, PPE, pasteur pipettes, sample containers, staining racks, samples)							
	c) Perform routine blood test according to SOPs (BS, MRDT)		√			√		√
	d) Perform routine urine test according to SOPs (macrocopy, microscopy and biochemical/multistix)		√			√		√
	e) Perform routine stool test according to SOPs (Macroscopic & microscopic)		√			√		√
	Sub-enabling Outcome; 5.8.3 Apply knowledge of laboratory investigation to perform routine Haematological tests Tasks:							
	a) Select equipment, Instrument required for routine Haematological investigations (Haemoglobinometers)		√			√		
	b) Select supplies/materials required for routine Haematological investigations		√			√		
	c) Perform routine haemoglobin estimation according to SOPs (Haemoglobinometers)		√			√		√
	Sub-enabling Outcome; 5.8.4 Apply knowledge and skills of laboratory investigation to perform routine Microbiological tests Tasks:							
	a) Select equipment, Instrument and supplies required for routine microbiological investigations		√			√		
	b) Perform Ziehl Nelsen Hot technique according to SOPs		√			√		√
	c) Perform rapid syphilis test according to SOPs		√			√		√
	d) Perform urine pregnancy test according to SOPs		√			√		√
	e) Perform rapid Hepatitis B and C test according to SOPs		√			√		√
	f) Perform rapid HIV test according to National rapid HIV testing Algorithm		√			√		√
	Sub-enabling Outcome; 5.8.5 Apply knowledge and skills of laboratory investigation to perform routine Clinical Chemistry test							

	Tasks:								
	a) Select equipment/Instrument and supplies required for routine Clinical Chemistry investigations		√				√		
	b) Perform routine urine biochemical tests		√				√		√
	c) Perform routine blood glucose test (Glucometer		√				√		√
	Sub-enabling Outcome; 5.8.6 Apply principles of quality assurance in performing routine laboratory investigations. Tasks:								
	a) Define terms related to quality (quality assurance, quality control)	√					√		
	b) Explain the purpose of quality assurance, quality control (provide a constant check on the reliability of test results, give early warning of methods which are becoming unreliable, enable acceptable limits to be set for test methods)			√			√		√
	c) Explain the purpose of quality assurance in basic laboratory investigation			√			√		
	d) Prepare positive and negative controls for routine tests		√				√		√
	e) Verify specimen collection, storage, analysis and results		√				√		
	f) Perform daily quality control testing		√				√		

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

c) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.3 Practical Test Format

- There will be two Continuous Assessment Practical tests which will contribute 25% of the module weight
- The practical questions will be set from the tasks which address skills and/or wider attributes present in the CA and candidates will be required to answer ALL.
- The practical continuous assessment tests will be conducted for three (3) hours and assessed by using checklists.
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks.
- Total marks for these examinations will be 100% and converted to 25%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.4.5 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)
 - In all sections candidates shall be required to answer **ALL** questions.
 - Total marks for each examination will be 100% and converted to 20%.

4.5 Practical Semester Examination format

- There will be a practical semester examination which will contribute 40% of the module weight
- The practical questions will be set from the tasks which address skills and wider attribute present in the SE and candidates will be required to answer ALL
- The practical examination will be conducted for three (3) hours and assessed by using checklists
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks
- Total marks for the examinations will be 100% and converted to 40%

MODULE CODE: MLT04208

MODULE NAME: Laboratory Specimen Management

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1.0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04208 Laboratory Specimen Management

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling Outcomes	Sub-enabling Outcomes
1.5 Apply customer care skills to provide laboratory services to the clients	1.1.2 Use request forms in verifying client information during sample collection
	1.1.4 Employ procedures of professional ethics in acquiring client consent when collecting sample
5.6 Apply standard	5.6.1 Describe methods of collecting routine specimens for laboratory

Enabling Outcomes	Sub-enabling Outcomes
operating procedures in collection of routine specimen for laboratory investigations	investigations
	5.6.2 Describe methods of handling routine specimens for laboratory investigations
	5.6.3 Apply procedures to collect specimens for routine laboratory investigations
	5.6.4 Apply procedures of accessioning specimens for laboratory investigations
	5.6.5 Apply standard operating procedures to maintain records of collected specimens in the laboratory
	5.6.6 Describe containers for collecting specimen for laboratory investigations
	5.6.7 Apply skills of specimen collection to select containers for specimen in the laboratory

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

Related tasks will be assessed through assignments, theory and practical (continuous assessment tests & semester examinations). Broader tasks (indicated by √ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Related Task	Competence to be Assessed						
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams		
1.	Sub-enabling Outcome: 1.1.2 Use request forms in verifying client information during sample collection					CA 46	SE 24	
	Tasks:					THEORY	OSPE	THEORY OSPE
	a) Explain client identifiers			√		√		
	b) Explain the significance of verifying client identifiers			√		√		
	c) Describe the importance of relating client's information against request form			√			√	
	d) Confirm client information on the request form (<i>Address, name, age, sex and hospital identification number, nationality, tribe</i>)		√				√	√
2.	Sub-enabling Outcome; 1.1.4 Employ procedures of professional ethics in acquiring client consent when collecting sample.							
	Related Tasks:							
	a) Define the term consent	√				√		
	b) Explain types of consent (<i>Informed consent and Implied consent</i>)			√		√	√	
	c) Explain the importance of seeking consent from the client			√		√		

	d) Describe challenges of seeking consent from the client (<i>consent denial, insufficient information, fearful, ashamed, language barrier, poor customer care, attire, age, belief, taboos, disease, trust, sex</i>)			√		√		√	
	e) Demonstrate skills for seeking consent from the client		√				√		√
3.	Sub-enabling Outcome: 5.6.1 Describe techniques of collecting routine specimens for laboratory investigations Tasks:								
	a) Define the term routine specimen	√				√			
	b) List routine specimens (stool, urine, blood and sputum)	√				√		√	
	c) Explain methods of blood collection (venipuncture and finger prick)			√		√		√	
	d) Explain methods of stool collection (direct method)			√		√			
	e) Explain method of sputum collection (invasive method and non-invasive method)			√		√		√	
	f) List sites of collecting venous and capillary blood (cubital, cephalic, femoral, jugular, finger tips, ear lobe and heels)	√				√		√	
	g) Explain collection of sputum specimen according to national TB and Leprosy Program Guideline (NTLP)			√				√	
	h) Describe types of urine specimen (First morning, Midstream, Spot urine, Terminal urine and 24 hours urine)			√		√		√	
	i) Explain methods of urine specimen collection (Direct, Suprapubic, Catheterized)			√		√			
4	Sub-enabling Outcome: 5.6.2 Describe methods of handling routine specimens for laboratory investigations Related Tasks:								
	a) Explain ways of handling specimen in the laboratory (specimen containers, chemical preservation, cold storage and fixing)			√		√		√	

	b) Explain ways of handling specimen during transportation (packaging, cold storage, labelling, transit time and means of transport)			√		√		√	
	c) Explain the importance of proper handling of routine specimen (e.g. ensure confidentiality, Avoid mixing specimen and request form, contamination, leakages, deterioration, result delay and loss)			√		√		√	
	d) List protective gears used in handling specimen (gloves, laboratory coats, masks, gumboots, eye goggles, apron and closed shoes)	√						√	
	e) Describe the importance of each protecting gears (gloves, laboratory coats, masks, gumboots and eye goggles)			√		√			
5	Sub-enabling Outcome: 5.6.3 Apply procedures to collect specimens for routine laboratory investigations								
	Tasks:								
	a) Identify materials for collecting the following routine specimen (blood, urine, stool and sputum)	√						√	
	b) Collect urine specimen according to SOPs		√					√	
	c) Collect stool specimen according to SOPs		√					√	
	d) Collect sputum specimen according to SOPs		√					√	
	e) Collect capillary blood specimen according to SOPs (finger, heel)		√					√	
	f) Collect venous blood specimen according to SOPs (cephalic, median, cubital)		√					√	√
6.	Sub-enabling Outcome: 5.6.4 Apply procedures of accessioning specimens for laboratory investigations								
	Tasks:								
	a) Define specimen accessioning	√				√			
	b) Explain significance of accessioning specimen			√		√		√	
	c) List criteria for accessioning specimens (correct specimen, specimen quantity, quality of specimen, verify client request form, correct/ specimen container	√				√			

	and specimen labeling)								
	d) Perform accessioning of specimen according to SOP		√				√		√
	e) Distribute specimens to working sites/benches		√				√		
	f) Communicate rejected specimen to relevant authority		√				√		
7.	Sub-enabling Outcome: 5.6.5 Apply standard operating procedures to maintain records of collected specimens in the laboratory								
	Tasks:								
	a) Store all collected specimens records according to set standards		√				√		
	b) Store all rejected specimens records according to set standard		√				√		
	c) Store reception register book (Not accessible to unauthorized person, under lock)		√				√		
8.	Sub-enabling Outcome: 5.6.6 Describe containers for collecting specimen for laboratory investigations								
	Tasks:								
	a) Define the term specimen container	√				√			
	b) List types of containers for specimen collection (blood, urine, stool, and sputum)	√				√			
	c) Describe uses of specimen containers according to their nature (plastic and glass)			√		√			
	d) Explain the significance of each container for laboratory investigation (Differentiates tests, storage of specimens, prevents infections)			√		√		√	
	e) List types of containers for specimen collection (containers for stool, urine, blood, sputum and sterile swab sticks)	√						√	
9.	5.6.7 Apply skills of specimen collection to select containers for specimen in the laboratory		√				√		√
	Related tasks:								
	a) Identify blood collection containers according to investigations (Plain and additive containing tubes)		√				√		√

	b) Identify urine collection containers according to laboratory investigations (Universal bottle, plastic container, Winchester bottle)		√				√		√
	c) Identify stool collection containers according to laboratory investigations (plastic container, bijou bottle for rectal swab)		√				√		√
	d) Identify sputum collection containers (wide mouth plastic container, 50ml falcon tube)		√				√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

d) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.4 OSPE Test format

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for this examination will be 100% which will be converted to 10%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.5.3 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 20%.

4.5 OSPE examination format

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for this examination will be 100% which will be converted to 10%.

MODULE CODE: MLT 04209

MODULE NAME: Computer Application

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1. 0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04209 application of Computer

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling outcomes	Sub- enabling outcomes
3.1 Describe concept of computer in handling laboratory information	3.1.1 Describe the computer in handling laboratory information
	3.1.2 Describe classification of Computers in information technology
	3.1.3 Describe the logical computer structure in information technology
3.2 Apply skills of computer to handle laboratory information	3.2.1 Describe the concepts of planned preventive maintenance on computer
	3.2.2 Describe computer malware in relation to computer operations
	3.2.3 Apply skills of planned preventive maintenance on computer
3.3 Apply internet, web and computer communication skills to handle laboratory information	3.3.1 Apply Word Processing program in preparing documents
	3.3.2 Apply Spreadsheet program in data processing.
	3.3.3 Apply presentation program in presenting laboratory information
3.4 Apply internet, web and computer communication in handling laboratory information	3.4.1 Describe application of computer in communication
	3.4.2 Apply internet searching skills in accessing web resources
	3.4.3 Apply internet, intranet and email skills in communication

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment, theory and practical tests and examination.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Related Task	Competence to be Assessed				13			
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester			
1.	Sub-enabling Outcome: 3.1.1 Describe the computer in handling laboratory information Related tasks:					CA 56		SE 40	
						T H E O R Y	P R A C	T H E O R Y	P R A C
	a) Define the terms (ICT, computer)	✓				✓		✓	
	b) Describe computer genesis and history			✓		✓		✓	
	c) Describe characteristics of computer			✓		✓		✓	
	d) Explain the advantages and disadvantages of using computer in handling laboratory information			✓		✓		✓	
2.	Sub-enabling Outcome; 3.1.2 Describe classification of Computers in information technology Related tasks:								
	a) List criteria for classifying computers	✓				✓			
	b) Classify computers according to size			✓		✓		✓	
	c) Classify computers according to technology			✓		✓		✓	
	d) Classify computers according to purpose			✓		✓		✓	

	Sub-enabling outcomes 3.2.3 Apply skills of planned preventive maintenance on computer Related task;								
	a) Perform PPM procedures on protecting computer from extreme temperatures		√				√		√
	b) Perform PPM procedures on protecting computer from dust		√				√		√
	c) Perform PPM procedures on protecting computer from viruses		√				√		√
	d) Remove spyware/ adware and viruses		√				√		√
	e) Conduct defragmentation of the computer		√				√		√
	Sub-enabling 3.3.1 Apply Word Processing program in preparing documents Related task								
	a) Identify parts of the Word window			√		√		√	
	b) Describe the basic of MS Word			√		√		√	
	c) Format text in a Microsoft Word document		√				√		√
	d) Create tables using Microsoft Word		√				√		√
	e) Work with images in MS Word		√				√		
	f) Prepare a word document for printing		√				√		√
	Sub-enabling outcomes 3.3.2 Apply Spreadsheet program in data processing Related task ;								
	a) Explain MS Excel in data processing			√		√			

	b) Describe MS Excel window features			√		√		√	
	c) Create formulas in MS Excel		√				√		√
	d) Manage MS Excel worksheet		√				√		√
	e) Create charts using MS Excel		√				√		√
	f) Print MS Excel Document		√				√		√
	Sub-enabling outcomes 3.3.3 Apply presentation program in presenting information Related task ;								
	a) Describe MS Power Point Presentation			√		√		√	
	b) Describe the role of master slide			√		√			
	c) Create Power Point presentation		√				√		√
	d) Format text of a PowerPoint presentation		√				√		√
	e) Add clip art and pictures in a PowerPoint presentation		√				√		√
	f) Add charts, diagrams and tables in a PowerPoint presentation		√				√		√
	g) Add auto shapes, word art and hyperlinks in a PowerPoint presentation		√				√		√
	h) Create animate slides of a PowerPoint presentation		√				√		√
	i) Add transition to a PowerPoint presentation		√				√		
	j) Perform presentation using MS Power Point		√				√		
	k) Print a Power Point presentation		√				√		
	Sub-enabling outcome 3.4.1 Describe application of computer in communication Related task ;								
	a) Define terms (internet, intranet, computer networks,	√				√			

	web)								
	b) Explain how the internet, intranet, computer networks and web function			√		√			
	c) Explain the advantages and disadvantages of internet			√				√	
	d) Explain types of internet connections (cable connection , Dial-up connection, DSL, Satellite, Wireless			√		√		√	
	Sub-enabling outcome 3.4.2 Apply internet searching skills in accessing web resources Related task;								
	a) Describe search engines, Boolean searching technique			√		√			
	b) Describe Boolean operators (AND, OR, NOT, Quotation marks, Parenthesis)					√			
	c) Search information by using Boolean techniques		√				√		
	Sub-enabling outcome 3.4.3 Apply internet, intranet and email skills in communication Related task;								
	a) Define electronic mailing	√				√			
	b) Describe email etiquette			√		√			
	c) Create email address		√				√		√
	d) Compose email message and send		√				√		
	e) Communicate using intranet		√				√		
	f) Attach documents to email message		√				√		

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- c) Written tests shall contribute 10% of the total weight
- d) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

e) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.4 Practical Test Format

- There will be two Continuous Assessment Practical tests which will contribute 25% of the module weight
- The practical questions will be set from the tasks which address skills and/or wider attributes present in the CA and candidates will be required to answer ALL.
- The practical continuous assessment tests will be conducted for three (3) hours and assessed by using checklists.
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks.
- Total marks for these examinations will be 100% and converted to 25%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.5.4 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 20%.

4.6 Practical Semester Examination format

- There will be a practical semester examination which will contribute 40% of the module weight
- The practical questions will be set from the tasks which address skills and wider attribute present in the SE and candidates will be required to answer ALL
- The practical examination will be conducted for three (3) hours and assessed by using checklists
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks
- Total marks for the examinations will be 100% and converted to 40%

MODULE CODE: MLT04210

MODULE NAME: Systemic Human Anatomy and Physiology

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

3.0. INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04210 Systemic Human Anatomy and Physiology

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (√) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (√) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

2.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling outcome	Sub enabling outcomes
5.7 Apply skills of cardiovascular and respiratory systems to diagnose diseases	5.7.1 Apply knowledge of structure of cardiovascular systems to diagnose diseases
	5.7.2 Apply knowledge of structure of circulatory systems to diagnose diseases
	5.7.3 Apply skills of structure of cardiovascular systems to diagnose diseases
	5.7.4 Describe structure and function of respiratory systems
	5.7.5 Apply knowledge of respiratory systems to diagnose diseases
5.8 Apply skills of nervous system and sensory organs to diagnose human diseases	5.8.1 Apply knowledge of structure and function of central nervous system to diagnose diseases
	5.8.2 Apply knowledge of structure and function of sensory organs to diagnose diseases
	5.8.3 Employ knowledge of human anatomy to collect specimens from sensory organs
5.5 Apply skills of gastrointestinal and genitourinary systems to diagnose diseases	6.5.1 Describe structure and function of digestive system
	5.5.6 Describe structure and function of urinary system
	5.5.7 Apply knowledge of structure of digestive and urinary systems to diagnose
	5.5.8 Describe structure and function of male and female reproductive system
	5.5.9 Apply knowledge and skills of human structural organisation to collect specimens from male and female reproductive system

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment, theory (tests & examination) and OSPE.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Associated Task	Competence to be Assessed						
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester		
1.	Sub-enabling Outcome: 5.2.1 Apply knowledge of structure of cardiovascular systems to diagnose diseases Related tasks:					CA		SE
						80		62
						T	O	
						H	S	
2.	Sub-enabling Outcome; 5.2.2 Apply knowledge of structure of circulatory systems to diagnose diseases Related tasks:							
3.	Sub-enabling Outcome; 5.2.3 Apply skills of structure of cardiovascular systems to diagnose diseases Related tasks:							

	cubital area)								
	b) Locate sites and blood vessels of the lower limb for blood collection (heel, big toe, dorsal pedis and femoral)		√				√		√
	c) Locate special sites and blood vessels for blood collection (neck, ear lobe and temporal site)		√				√		√
4.	Sub-enabling Outcome; 5.2.4 Apply knowledge of structure of respiratory systems to diagnose diseases Related tasks:								
	a) Describe the structure and function of the upper respiratory tract			√		√		√	
	b) Describe the structure and function of lower respiratory tract.			√		√		√	
	c) Describe pleura and pleural cavity			√		√		√	
	d) Explain types of respiration			√		√		√	
	e) Explain breathing mechanism			√		√			
	f) Describe pulmonary volumes and capacities			√		√		√	
5.	Sub-enabling Outcome; 5.2.5 Apply knowledge of respiratory systems to diagnose diseases Related tasks:								
	a) Locate sites of the upper respiratory tract for collection specimen (nose and pharynx)		√				√		
	b) Locate structure of the lower respiratory tract for collection of specimen (tracheobronchial tree and lungs)		√				√		√
	c) Locate structure for collection of other respiratory specimens (pleural cavity)		√				√		√
6.	Sub-enabling Outcome; 5.3.1 Apply knowledge of structure and function of central nervous system to diagnose diseases Related tasks:								
	i) Describe structural organization of the central nervous system			√		√		√	
	j) Describe structure and functions of the brain tissue			√		√	√	√	√
	k) Describe structure and function of the meninges			√		√			
	l) Describe ventricular system and cerebrospinal fluid flow			√		√		√	

	m) Describe cranial nerves			√		√		√	
	n) Describe functions of the cranial nerves			√		√		√	
	o) Describe the structure and function of the spinal cord			√		√		√	
	p) Describe structure and functions of peripheral nervous system			√		√		√	
7.	Sub-enabling Outcome; 5.3.2 Apply knowledge of structure and function of sensory organs to diagnose diseases Related tasks:								
	a) Describe structure and functions of the skin and its appendages			√		√	√	√	√
	b) Describe the structure and functions of the ear			√		√			
	c) Describe the mechanism of hearing			√		√		√	
	d) Describe the physiology of balance			√		√			
	e) Describe structure and functions of the eye and its adnexa			√		√		√	
	f) Describe the structure and function of extra-ocular muscles			√		√			
	g) Describe the physiology of vision of the eye			√		√		√	
	h) Describe structure and functions of the skin and its appendages			√				√	
	i) Describe the structure and function of the nose			√		√		√	
	j) Describe the structure and function of the tongue								
8.	Sub-enabling Outcome; 5.3.3 Employ knowledge of human anatomy to collect specimens from sensory organs Related tasks:								
	i) Describe the structural organization and functions of skeleton			√		√	√	√	√
	j) Describe structural organization and functions of the skull			√		√	√	√	√
	k) Describe structural organization and functions of vertebral column			√		√	√	√	
	l) Describe structural organization and functions of the			√		√	√	√	

	thoracic cage								
	m) Describe structural organization and function of the shoulder, girdle and upper limb			√		√	√	√	√
	n) Describe structural organization and functions of the pelvic girdle and lower limb			√		√			
	o) Describe structural organization and function of joints			√		√		√	
	p) Describe types and range of movement at synovial joints			√		√		√	
9.	5.5.1 Describe structure and functions of digestive system Related tasks:								
	a) List organs of the digestive system (liver, pancreas, bile duct, gall bladder, stomach, small and large intestines)	√				√			
	b) Describe structure and functions of the components of oral cavity (teeth, tongue, palates and floor of the mouth)			√		√		√	
	c) Describe structure and functions of salivary glands			√		√		√	
	d) Explain constituents and functions of saliva			√				√	
	e) Describe the structure and functions of oesophagus			√		√			
	f) Describe structure and functions of the stomach			√		√			
	g) Describe structure and functions of the small intestines			√		√		√	
	h) Describe structure and functions of large intestines			√				√	
	i) Describe structure and functions of anal canal			√				√	
	j) Describe structure and functions of the liver and gallbladder			√		√			
	k) Explain the constituents and functions of bile			√		√		√	
	l) Describe structure and functions of the pancreas			√		√			
10.	5.5.2 Describe structure and function of urinary system Related tasks:								
	a) List structures/organs of urinary system (kidney, ureter, urinary bladder and urethra)	√				√			
	b) Describe structure of the kidney			√		√	√	√	√
	c) Describe structure and functions of lower urinary system (ureter, urinary bladder and urethra)					√	√		

	d) Describe structure of a nephron			√		√		√	
	e) Explain the process of urine formation (filtration, secretion and re-absorption)			√		√		√	
	f) Explain the constituents of urine			√		√		√	
11.	5.5.3 Apply knowledge of structure of digestive and urinary systems to diagnose diseases Related tasks:								
	a) List diseases affecting digestive system	√				√			
	b) List diseases affecting urinary system	√						√	
	c) Locate sites for collecting gastrointestinal specimens (buccal cavity and anal canal)		√				√		√
	d) Locate sites for collecting specimens of the urinary system (urethra and urinary bladder)		√				√		√
12.	5.5.4 Describe structure and function of male and female reproductive system Related tasks:			√		√			
	a) Describe structural organization of male reproductive system			√		√	√		√
	b) Describe structure and functions of testis			√		√		√	
	c) Describe structure and functions of penis			√		√		√	
	d) Describe the development, storage and transport of spermatozoa			√		√			
	e) Describe structure and functions of seminal vesicles, prostate and bulbourethral glands			√				√	
	f) Describe secondary male characteristics			√		√		√	
	g) Describe structural organization of female reproductive system			√		√			
	h) Describe structures of the perineum and external genitalia			√		√			
	i) Describe structure and functions of the uterus and fallopian tube			√					
	j) Describe structure of the ovary			√		√		√	
	k) Describe formation of primordial follicles and follicular maturation			√		√		√	

	l) Describe hormonal role in female puberty			√		√		√	
	m) Describe menstruation cycle			√		√		√	
	n) Describe the process of fertilization			√		√		√	
	o) Describe structure of female breast			√		√			
13.	5.5.5 Apply knowledge and skills of human structural organisation to collect specimens from male and female reproductive system Related tasks:								
	a) List specimens collected from female genitalia (Example: high vaginal swab, Pap smear and vaginal lavage, endocervical swab)	√				√			
	b) List specimens collected from male genitalia (seminal fluid, urethral swab)	√				√			
	c) Locate sites for collecting female genital specimens		√				√		√
	d) Locate sites for collecting male genital specimens		√				√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

a) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
 - b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

b) OSPE Test format

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for this examination will be 100% which will be converted to 10%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and OSPE components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours

4.3.6 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
 - ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
 - iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
 - iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
 - v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)
- In all sections candidates shall be required to answer **ALL** questions.
 - Total marks for each examination will be 100% and converted to 40%.

4.3.4 OSPE Semester Examination

- There will be two OSPE tests which will contribute 10% of the module weight.
- Questions will be set from tasks which addresses skills, understanding or wider attributes.
- The examination will consist of four (4) questions distributed in four (4) stations that will be conducted for duration of 7 minutes per station and assessed by using checklists.
- Total marks for each examination will be 100% and converted to 20%.

MODULE CODE: MLT 04211

MODULE NAME: Laboratory Reagent and Solutions

QUALIFICATION: NTA Level 4 - Basic Technician Certificate in Medical Laboratory Sciences.

1. 0 INTRODUCTION:

This assessment plan has been prepared by the Ministry of Health (MoH) in collaboration with the National Council for Technical and Vocational Education and Training (NACTVET) for the module MLT04211 Laboratory Reagent and Solutions

The assessment plan is one of the tools for implementing competence-based education and training (CBET) curricula. The assessor therefore, shall assess learning outcomes stipulated within the NTA level 4 curriculum flexibly based on the student's ability to show competence involving application of skills and knowledge at routine level.

This assessment plan was developed in October 2022 from an NTA level 4 curriculum which was approved in May 2022. It has two components of the module to be assessed. These components are continuous assessment (CA) which will carry 40% of the module weight; and semester examination (SE) which will carry the remaining 60% of the module weight.

This assessment plan contains sub-enabling outcomes with related tasks that shall be tested in continuous assessment (CA) and semester examination (SE). A tick (✓) which appears in either CA or SE column indicates the period when the task shall be assessed. Where a tick (✓) appears in both CA and SE columns, the task shall be assessed in both. Tasks requiring long term accomplishment shall be assessed during the continuous assessment (CA). Other tasks require short time to accomplish; therefore, they shall be assessed during the semester examination (SE). Some tasks, which are common and cover daily laboratory practice of the Assistant health laboratory technologist after completion of this module, shall be assessed in both CA and SE. The assessor shall focus on those core areas of competences as stipulated in the curriculum.

1.0 ENABLING AND SUB-ENABLING OUTCOMES

Enabling outcomes	Sub-enabling outcomes
4.1 Prepare clinical laboratory reagents and solutions according to SOPs	4.1.1 Describe reagents and solutions for routine Parasitology tests
	4.1.2 Describe reagents and solutions for routine microbiology tests
	4.1.3 Describe reagents and solutions for routine Haematology tests
	4.1.4 Describe reagents and solutions for routine Blood Transfusion tests
	4.1.5 Describe reagents and solutions for routine clinical chemistry tests
	4.1.6 Prepare reagents and solutions for routine laboratory tests
4.2 Verify the quality of reagents and solutions to ensure reliable laboratory results.	4.2.1 Describe the methods of determining quality of reagents and solutions in the laboratory
	4.2.2 Verify performance characteristics of reagents and solutions in the laboratory to ensure reliable laboratory results.
	4.2.3 Apply skills of documentation for verified results of the reagents and solutions
4.3 Use guidelines/SOPs to store reagents and solutions in the laboratory.	4.3.1 Describe methods of storing reagents and solutions in the laboratory
	4.3.2 Apply storage procedures for reagents and solutions in laboratory according to guidelines/SOPs
	4.3.3 Apply skills of documentation in storage of reagents and solutions in the laboratory

3.0 HOW TO USE THIS ASSESSMENT PLAN

Each task/competence specified in the Table below will be assessed separately.

The tasks will be assessed through assignment and theory tests and examinations.

Broader tasks (indicated by ✓ in both columns for CA & SE) will be assessed in CA and SE based on this assessment plan.

Table below clarify how the sub-enabling outcomes and their related tasks will be assessed.

S/N	Sub-enabling Outcomes and Related Task	Competence to be Assessed				27			
		Knowledge	Skills	Understanding	Wider attributes	No. of tasks provided under Continuous Assessment and Semester Exams			
1.	Sub-enabling Outcome: 4.1.1 Describe reagents and solutions for routine Parasitology tests					CA 59		SE 44	
	Tasks:								
	a) Define the terms (reagent, solution)	✓				✓			
	b) List ingredients of Giemsa stock solution	✓				✓			
	c) List ingredients of Field stain A, B solutions	✓						✓	
	d) Explain the application of each reagent and solution (Giemsa stock solution, Field stain A, B solutions, 10% Formalin, Ether, Normal saline)			✓				✓	
	e) List the advantages and disadvantages of each reagent and solution (Giemsa, Field stain A, B), 10% Formalin, Ether, Normal saline)	✓				✓			
2.	Sub-enabling Outcome: Describe reagents and solutions for routine microbiology tests								
	Tasks:								
	a) List reagents and solutions for Ziehl Neelsen (ZN) staining method	✓				✓		✓	
	b) List ingredients for each reagent for Ziehl Neelsen (ZN) staining method	✓				✓		✓	
	c) List ingredients for each reagent for Auramine	✓				✓		✓	

	staining technique							
	d) List reagents and solutions for Gram staining method	√				√		√
	e) List ingredients for each reagent for Gram staining method	√						√
	f) List ingredients for KOH solution	√				√		
	g) Explain the application of each reagent and solution (ZN reagents, Gram stain reagents, KOH solution and Auramine stain)			√		√		√
	h) List the limitations and hazards for each reagent and solution (ZN reagents, Gram stain reagents, KOH solution and Auramine stain)	√				√		
3.	Sub-enabling Outcome: 4.1.3 Describe reagents and solutions for routine Haematology tests							
	Tasks:							
	a) List ingredients for Drabkin's solution	√				√		
	b) List ingredients for Turk's solution	√				√		√
	c) List ingredients for Sodium metabisulphite solution	√				√		√
	d) List ingredients for Sodium citrate solution	√						√
	e) List ingredients for Leishman stain	√				√		
	f) List ingredients for Brilliant Cresyl Blue	√				√		
	g) List ingredients for New Methylene Blue	√						√
	h) Explain the application of each reagent/ solution (Drabkin's solution, Turk's solution, Sodium metabisulphite solution, Sodium citrate solution)			√		√		√
	i) Explain the limitations and hazards for each reagent and solution (Drabkin's solution Turk's solution, Sodium metabisulphite solution, Sodium citrate solution)			√		√		√
4	Sub-enabling Outcome: 4.1.2 Describe reagents and solutions for routine Blood Transfusion tests							
	Related Tasks:							

	a) List ingredients of Copper II Sulphate (CuSO ₄) solution	√				√		√	
	b) List ingredients for CPDA solution (Citric acid anhydrous, Sodium citrate dihydrate, Sodium phosphate monohydrate, Dextrose monohydrate, Adenine)	√		√		√		√	
	c) List ingredients for CPD solution (Citric acid anhydrous, Sodium citrate dihydrate, Sodium phosphate monohydrate, Dextrose monohydrate)	√		√		√		√	
	d) List ingredients of ACD solution (Citric acid anhydrous, Sodium citrate dihydrate, Sodium phosphate monohydrate, Dextrose monohydrate)	√				√			
	e) List ingredients of 0.85%/Normal saline solution (sodium chloride, water)	√						√	
	f) List the application for each reagent and solution (CuSO ₄ solution, CPDA, CPD, ACD, 0.85% Normal saline)	√				√			
	g) List the limitation and hazards for each reagent and solution	√				√			
5	Sub-enabling Outcome: 4.1.3 Describe reagents and solutions for routine clinical chemistry tests								
	Related Tasks:								
	a) List reagents and solutions used in clinical chemistry (Benedict solution, 3% acetic acid solution, 20% Sulphosalicylic acid solution, 1% Phenol)	√				√		√	
	b) List ingredients of Benedict solution	√				√			
	c) List strips used in clinical chemistry (Albustix, Clinistix, Ketostix, Multistix)	√		√		√		√	
	d) Explain the principle of Albustix			√		√			
	e) Explain the principle of Clinistix			√				√	
	f) Explain the principle of Multistix			√		√			
	g) List ingredients of 1% Phenol solution	√				√			
	h) List ingredients of 3% acetic acid solution	√						√	

	i) List ingredients of 20% Sulphosalicylic acid solution	√				√			
	j) List the application for each reagent and solution (Benedict solution, 3% acetic acid, 20% Sulphosalicylic acid, 1% Phenol)	√						√	
	k) List limitation and hazards for each reagent and solution (Benedict solution, 3% acetic acid, 20% Sulphosalicylic acid, 1% Phenol)	√				√			
6.	Sub-enabling Outcome: 4.1.4 Prepare reagents and solutions for routine laboratory tests Tasks:								
	a) Demonstrate standard unit conversion for preparation of different concentrations of reagents (Examples: gram/dL, gram/L, millimole/L, milligram/dL, micromole/L, percentages, Moles, Molality, Molarity, Normality)		√				√		√
	b) Prepare Giemsa stain solution as per SOP		√				√		√
	c) Prepare Field stain A and B solutions as per SOP		√				√		√
	d) Prepare Auramine staining reagent as per SOP		√				√		
	e) Prepare Turk's solution as per SOP		√				√		√
	f) Prepare Gram staining solutions as per SOP		√				√		
	g) Prepare ZN staining solution as per SOP		√						√
	h) Label prepared reagents and solutions according to SOPs (Name, concentration of reagent, name of the personnel prepared the reagent, date prepared, expiry date, QC passed, Lot/Batch number)		√				√		√
7.	Sub-enabling Outcome: 4.2.1 Describe methods of determining quality of reagents and solutions in the laboratory Tasks:								
	a) List methods of determining quality of reagents and solutions (quality control, validation, verification)	√				√		√	

	b) Explain the methods of determining quality of reagents and solutions (Quality control, Validation, Verification)		√	√		√		√	
	c) Explain the importance of determining performance characteristics of reagents and solutions for quality checks (To check method precision, accuracy and reliable results)			√		√		√	
8.	Sub-enabling Outcome: 4..2.2 Verify performance characteristics of reagents and solutions in the laboratory								
	Tasks:								
	a) Verify quality performance of reagents in Parasitology using known samples		√				√		√
	b) Verify quality performance of reagents in haematology using known samples		√	√			√		√
	c) Verify quality performance of reagents in blood transfusion using known samples		√	√			√		√
	d) Verify quality performance of reagents in Clinical chemistry using control samples and standards/calibrators		√				√		
	e) Verify quality performance of reagents in Microbiology using standard organisms		√				√		
	f) Verify quality performance of solutions for laboratory investigations using known samples		√						√
	Sub-enabling outcome 4.2.3 Apply skills of documentation for verified results of the reagents and solutions								
	Task								
	a) Explain the significance of documentation of verified reagent and solution results			√		√		√	
	b) Document verified results for reagent and solution		√				√		√
	c) Store documents for verification of reagent and solution		√				√		

	Sub-enabling outcome 4.3.1 Describe methods of storing reagents and solutions in the laboratory Task								
	a) List types of reagents and solutions to be stored in the laboratory (acids, alkalis, flammable/inflammable, non-flammable, toxic, salts)	√				√			
	b) List different methods of storing reagents and solution (cold chain, room temperature, lockable cabinet, dark room, shelf, ground, under water)	√				√			
	c) List advantages of proper storage of reagents and solutions	√						√	
	d) List disadvantages of improper storage of reagents and solutions	√				√			
	Sub-enabling outcome 4.3.2 Apply storage procedures for reagents and solutions in laboratory Task								
	a) Define Material safety data sheet (MSDS)	√				√		√	
	b) Store flammable reagents and solutions according to MSDS								
	c) Store corrosive reagents and solutions according to MSDS		√				√		√
	d) Store toxic or poisonous reagents and solutions according to MSDS		√				√		
	e) Store irritant or injurious vapour reagents and solutions according to MSDS		√						√
	f) store oxidizing reagents and solutions according to MSDS		√				√		
	Sub-enabling outcome 4.3.3 Apply skills of documentation in storage of reagents and solutions in the laboratory Task								

	a) Identify methods of documenting stored reagents and solutions (Paper based and electronic based)	√				√			
	b) Explain the significance of documenting stored reagents and solutions			√		√		√	
	c) Document stored reagents and solutions in the laboratory (Name, conc. of reagent, name of the personnel prepared the reagent, date prepared, expiry date, QC passed, lot/batch number, storage condition)		√				√		√

ASSESSMENT INSTRUCTIONS

This section describes number of examinations in a module for both Continuous Assessment (CA) and Semester Examination (SE), duration, number of questions, marks allocation and sections for each component of assessment.

It consists of two parts of the assessment; Continuous Assessment and Semester Examination. Continuous assessment shall be conducted throughout the semester and contribute 40% of the module weight and Semester Examination shall be conducted at the end of semester and contribute 60% of the module weight.

4.1 Continuous Assessment

4.1.1 Module weight

The continuous assessment shall contribute 40% of the total module weight. There shall be two (2) components of continuous assessments;

- a) Written tests shall contribute 10% of the total weight
- b) Assignments shall contribute 5% of the total weight

4.1.2 Duration of assessments

The duration of each written test shall be two (2) hours

4.1.3 Number of questions, marks distributions and sections

b) Written tests

There shall be minimum of two written examinations. The continuous written assessment examination shall have five sections; A, B, C, D and E

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)

- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

b) Assignments

- a) There shall be two written individual assignments
- b) Assignments shall be set from competences which address wider attributes.
- Note: Objective questions are NOT ALLOWED to be assessed in the assignment

4.5 Practical Test Format

- There will be two Continuous Assessment Practical tests which will contribute 25% of the module weight
- The practical questions will be set from the tasks which address skills and/or wider attributes present in the CA and candidates will be required to answer ALL.
- The practical continuous assessment tests will be conducted for three (3) hours and assessed by using checklists.
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks.
- Total marks for these examinations will be 100% and converted to 25%.

4.3 Semester Examination

4.3.1 Module weight

The semester examination shall consist of written and practical components which contribute 60% of the total weight of the module.

4.3.2 Duration of assessments

The duration of each written examination shall be (2) hours and three hours (3) for practical examination.

4.6.3 Written Semester Examination Format

- i. Section A shall comprise of twenty (20) Multiple Choice Questions each having 5 options with a total of 20 marks (1 mark for each question)
- ii. Section B shall comprise of four (4) Multiple True/False Questions each having 5 statements with a total of 10 marks (0.5 marks for each statement)
- iii. Section C shall comprise of two (2) Matching Item Questions each with 5 premises and 8 responses with a total of 10 marks (5 marks for each question)
- iv. Section D shall comprise of six (6) Short Answer Questions with a total of 30 marks (score for each question shall be 5 marks)
- v. Section E shall comprise of two (2) Guided Essay Questions with a total of 30 marks (15 marks for each question)

In all sections candidates shall be required to answer **ALL** questions.

- Total marks for each examination will be 100% and converted to 20%.

4.7 Practical Semester Examination format

- There will be a practical semester examination which will contribute 40% of the module weight
- The practical questions will be set from the tasks which address skills and wider attribute present in the SE and candidates will be required to answer ALL
- The practical examination will be conducted for three (3) hours and assessed by using checklists
- The examination will consist of four (4) hands on questions; each will carry twenty-five (25) marks
- Total marks for the examinations will be 100% and converted to 40%