MEDICAL LABORATORY TECHNIQUES LEVEL III

TVET CURRICULUM

Based on version-4

Occupational Standard (OS)

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Preface

The reformed TVET-System is an outcome-based system. It utilizes the needs of the labor market and occupational requirements from the world of work as the benchmark and standard for TVET delivery. The requirements from the world of work are analyzed and documented taking into account international benchmarking as occupational standards (OS).

In the reformed TVET-System, curricula and curriculum development play an important role with regard to quality driven TVET-Delivery. Curricula help to facilitate the learning process in a way, that trainees acquire the set of occupational competences (skills, knowledge and attitude) required at the working place and defined in the occupational standards (OS)..

This curriculum has been developed by a group of experts from different Regional TVET-Authorities based on the occupational standard for Medical Laboratory Techniques Level III . It has the character of a model curriculum and is an example on how to transform the occupational requirements as defined in the respective occupational standard into an adequate curriculum.

The curriculum development process has been actively supported and facilitated by the Ministry of Health and Ministry of labor and skill

TVET-Program Design

1.1. TVET-Program Title: Medical Laboratory Techniques Level III

1.2. TVET-Program Description

The Program is designed to develop the necessary knowledge, skills and attitude of the learners to the standard required by the occupation. The contents of this program are in line with the occupational standard. Learners who successfully completed the Program will be qualified to work as a Medical Laboratory Technicians with competencies elaborated in the respective OS. Graduates of the program will have the required qualification to work in the health sector in the field of Medical Laboratory.

The prime objective of this training program is to equip the learners with the identified competences specified in the OS. Graduates are therefore expected to Provide First Aid and Emergency Response, Apply Infection Prevention Techniques and Workplace OHS, Provide Motivated Competent and Compassionate service, perform equipment handling and maintenance, Collect and Process Medical Samples, Prepare Laboratory Solutions, Apply Computer and Mobile Health Technology, Perform Urine and Body Fluid analysis, Perform Parasitological Examination, Apply 5S Procedures, Perform Community Mobilization and Provide Health Education and Apply basic health statistics and health survey in accordance with the performance criteria described in the OS.

1.3. TVET-Program Learning Outcomes

The expected outputs of this program are the acquisition and implementation of the following units of competences:

HLT MLT3 01 1121 Provide Motivated Competent and Compassionate service
HLT MLT3 02 1121 Apply Infection Prevention Techniques and Workplace OHS
HLT MLT3 03 1121 Provide First Aid and Emergency Response
HLT MLT3 05 1121 Perform equipment handling and maintenance
HLT MLT3 06 1121 Prepare Laboratory Solutions
HLT MLT3 04 1121 Collect and Process Medical Samples
HLT MLT3 09 1121 Apply Computer and Mobile Health Technology
HLT MLT3 07 1121 Perform Parasitological Examination
HLT MLT3 08 1121 Perform Urine and Body Fluid analysis
HLT MLT3 10 1121 Apply basic health statistics and health survey
HLT MLT3 11 1121 Perform Community Mobilization and Provide Health Education
HLT MLT3 12 1121 Apply 5S Procedures

1.4. Duration of the TVET-Program

The Program will have duration of **1774 hours** including the on-the-job practice or cooperative training time.

s.no	Unit competency	On school training		Cooperative training	Total hours	Remarks
		Theory	Practical			
1.	Provide Motivated Competent and Compassionate service	40	-	-	40	
2.	Apply Infection Prevention Techniques and Workplace OHS	32	24	40	96	
3.	Provide First Aid and Emergency Response	60	120	-	180	
4.	Perform equipment handling and maintenance	60	60	60	180	
5.	Prepare Laboratory Solutions	60	60	60	180	
6.	Collect and Process Medical Samples	100	120	80	300	
7.	Apply Computer and Mobile Health Technology	44	56	-	100	
8.	Perform Parasitological Examination	120	70	60	250	
9.	Perform Urine and Body Fluid analysis	120	70	50	240	
10.	Apply basic health statistics and health survey	40	40	-	80	
11.	Perform Community Mobilization and Provide Health Education	56	-	40	96	
12.	Apply 5S Procedures	16	8	8	32	
	Total Hours	**748**	**628**	**398**	**1774**	

1.5. Qualification Level and Certification

Based on the descriptors elaborated on the Ethiopian National TVET Qualification Framework (NTQF) the qualification of this specific TVET Program is **"**Level III".

The learner will not be awarded any certificate before completion of all the modules that are designed for the exit in level IV.

1.6. Target Groups

Any citizen who meets the entry requirements set by the concerned organization for the academic year and capable of participating in the learning activities is entitled to take part in the Program.

1.7 Entry Requirements

The prospective participants of this program are required to possess the requirements or directive of the Ministry of labor and skill.

1.8 Mode of Delivery

This TVET-Program is characterized as a formal Program on middle level technical skills. The mode of delivery is co-operative training. The TVET-institution and identified companies have forged an agreement to co-operate with regard to implementation of this program. The time spent by the trainees in the industry will give them enough exposure to the actual world of work and enable them to get hands-on experience.

The co-operative approach will be supported with school-based lecture-discussion, simulation and actual practice. These modalities will be utilized before the trainees are exposed to the industry environment.

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1.9. TVET Program Structure

Unit of Competence	Module Code & Title		Learning Outcomes	Duration (In Hours)
Provide Motivated Competent and Compassionate service	HLT MLT3 M01 0222	Providing Motivated Competent and Compassionate service	• Apply professionalism and ethical practice principles • Apply humanistic care to clients • Demonstrate effective health care communication • Provide respectful care for clients • Perform with legal and ethical framework through responsibility and accountability • Provide quality service	40
Apply Infection Prevention Techniques and Workplace OHS	HLT MLT3 M02 0222	Applying Infection Prevention Techniques and Workplace OHS	• Apply infection prevention techniques • Establish and maintain participative arrangements • Assess and control risks and hazards • Limit contamination • Clean environmental surfaces	96
Provide First Aid and Emergency Response	HLT MLT3 M03 0222	Providing First Aid and Emergency	• Assess and identify client's condition. • Provide first aid service • Prepare, evaluate and act in an emergency	180

		Response	• Communicate details of the incident • Refer client requiring further care • Evaluate own performance	
Perform equipment handling and maintenance	HLT MLT3 M04 0222	Performing equipment handling and maintenance	• Identify different parts of laboratory equipment • Perform equipment Operation and Handling • Perform equipment calibration • Perform equipment maintenance • Keep records of equipment maintenance and calibration report	180
Prepare Laboratory Solutions	HLT MLT3 M05 0222	Preparing Laboratory Solutions	• Prepare a working solutions • Standardize solution • Monitor the quality of laboratory solutions • Maintain safe work environment	180
Collect and Process Medical Samples	HLT MLT3 M06 0222	Collecting and Processing Medical Samples	• Apply concept of physiology and anatomy • Prepare to collect samples • Collect and handle sample • Transport and handle sample • Receive and log sample • Distribute samples • Prepare sample for testing.	300

			• Maintain safe work environment	
Apply Computer and Mobile Health Technology	HLT MLT3 M07 0222	Applying Computer and Mobile Health Technology	• Start computer, system information and features • Navigate and manipulate desktop environment problems • Identify the existing Health technologies • Apply the functions of Techniques • Evaluate new or upgraded Techniques performance	100
Perform Parasitological Examination	HLT MLT3 M08 0222	Performing Parasitological Examination	• Identify concept of human parasitology • Process samples and associated request details • Set up and use microscope • Perform tests • Maintain a safe environment • Maintain laboratory records	250

Perform Urine and Body Fluid analysis	HLT MLT3 M09 0222	Performing Urine and Body Fluid analysis	• Identify concept of urinalysis and body fluid • Process samples and associated request details • Perform testing • Maintain laboratory records • Maintain a safe environment	240
Apply basic health statistics and health survey	HLT MLT3 M10 0222	Applying basic health statistics and health survey	• Prepare for the application of health survey • Undertake data collection • Compile, interpret and utilize health data • Prepare and submit reports • Take intervention measures accordingly	80
Apply 5S Procedures	HLT MLT3 M12 0222	Applying 5S Procedures	• Develop understanding of quality system • Sort needed items from unneeded • Set workplace in order • Shine work area • Standardize activities • Sustain 5S system	32

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1.10 Institutional Assessment

Two types of evaluation will be used in determining the extent to which learning outcomes are achieved. The specific learning outcomes are stated in the modules. In assessing them, verifiable and observable indicators and standards shall be used.

The ***formative assessment*** is incorporated in the learning modules and form part of the learning process. Formative evaluation provides the trainee with feedback regarding success or failure in attaining learning outcomes. It identifies the specific learning errors that need to be corrected, and provides reinforcement for successful performance as well. For the teacher, formative evaluation provides information for making instruction and remedial work more effective.

Summative Evaluation the other form of evaluation is given when all the modules in the program have been accomplished. It determines the extent to which competence have been achieved. And, the result of this assessment decision shall be expressed in the term 'competent or not yet competent'.

Techniques or tools for obtaining information about trainees' achievement include oral or written test, demonstration and on-site observation.

1.11 TVET Teachers Profile

The teachers conducting this particular TVET Program are A Level and have satisfactory practical experiences or equivalent qualifications.

LEARNING MODULE 01

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE: Providing Motivated Competent and Compassionate service

MODULE CODE: HLT MLT3 M01 0222

NOMINAL DURATION: 40 Hours

MODULE DESCRIPTION: This module covers the necessary knowledge, skills and attitude required to effectively form professional duties and responsibilities with compassionate caring and respectful manner by applying basic principles of professional, ethical and legal aspects of the profession.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Apply professionalism and ethical practice principles

LO2. Apply humanistic care to clients

LO3. Demonstrate effective health care communication

LO4. Provide respectful care for clients

LO5. Perform with legal and ethical framework through responsibility and accountability

LO6. Provide quality service

MODULE CONTENTS:

LO1. Professionalism and ethical practice

1.1. Basic concept of ethics

1.2. Professional ethics

1.3. Ethical principles

1.4. Professional code of conducts

1.5. Professional values

LO2. Applying humanistic care to clients.

2.1 Understanding and implement clients concern

2.2 Considering clients feelings and emotions

2.3 Defining characteristics of innate needs

LO3. Demonstrating effective health care communication

3.1 Establishing collaborative working relationship

3.2 Expressing compassion concern of the clients

3.3 Gathering Proper information

3.4 Therapeutic communication

3.5 Non-violent communication techniques

3.6 Educating and counseling clients

LO4. Providing respectful care for clients

4.1 Listening Health care practitioners to Clients and family perspectives choices honor

4.2 Planning and delivery of care Patient and family incorporate into knowledge, values, beliefs and cultural backgrounds

4.3 Communicating Complete and unbiased information share with patients and families

4.4 Participating Patients and families in care and decision-making

4.5 Collaborating all concerned body in policy and program development, implementing and evaluating

4.6 Respecting Patient's rights

LO5. Performing legal and ethical framework

5.1 Understanding Legislation and common laws

5.2 Respecting and practice Policies

5.3 Ensuring Confidentiality of individual's record

5.4 Preventing patient's information Disclosure

5.5 Ethical issues and ethical dilemma

5.6 Handling client who is not able to communicate

5.7 Releasing Patient-specific data

5.8 Conducting Training programs on ethical issue for health care provider and other staff

LO6. Provide quality service

6.1 Giving Motivated and qualified service

6.2 Assisting client to gain personal goal.

6.3 Performing Task

Learning Methods:

- Interactive lecture
- Group discussion
- Demonstration

- Group assignment
- Individual assignment

Assessment Methods: Formative

- Continuous assessments (quiz, assignment, tests etc.).
- Oral questioning
- Skill check out
- Final written exam

Assessment Criteria

LO1. Applying professionalism and ethical practice principles

- Ethical principles and issues of the profession are identified and executed
- Professional code of conducts are identifies and executed
- Professional values are recognized and demonstrated
- Adherence to ethical principles of the profession is maintained and evaluated
- Professional practice are maintained according to applicable standards

LO2. Applying humanistic care to clients.

- Patients concern are understood and implemented
- Patient and clients feelings and emotions are considered
- Patients innate needs are addressed and communicated

LO3. Demonstrating effective health care communication

- Positive, respectful and collaborative working relationship is established
- Compassion concern for the patient should be recognized, anticipated and expressed.
- Proper information is gathered and effectively elicited in order to facilitate accurate diagnosis and management
- Appropriate non-verbal communication is used
- Clients are effectively informed, educated and counselled
- Effective interaction with other people working within the health system is established
- Therapeutic instructions are provided compassionately
- Non-violent communication techniques are used and implemented

LO4. Providing respectful care for clients

- Health care practitioners are listened to and patient and family perspectives and choices honored

- Patient and family knowledge, values, beliefs and cultural backgrounds are incorporated into the planning and delivery of care
- Complete and unbiased information are communicated and shared with patients and families by the practitioner in in an affirming and useful manner
- Patients and families are made to receive timely, complete, and accurate information in order to effectively participate in care and decision-making.
- Patients, families, health care practitioners, and hospital leaders have been collaborated in policy and program development, implementation, and evaluation; in health care facility design; and professional education and the delivery of care.
- Patient's rights to access care, transfer and continuity of care are respected.

LO5 Performing legal and ethical framework

- Legislation and common laws relevant to work role are understood
- Policies and procedures are respected and practiced
- Confidentiality of individual's record is ensured.
- Disclosure of patient's information to another person is prevented without patient's consent.
- Ethical issues and ethical dilemma in the workplace is recognized
- Patients who are not able to communicate in case of emergency or other conditions are handled.
- Patient-specific data are released to only authorized users.
- Training programs for health care providers and other staff on privacy and confidentiality of patient information are conducted
- Unethical conduct is recognized and reported

LO6. Provide quality service

- Motivated and qualified service is given for the patient
- The patient is assisted to gain their personal goal.
- Task is performed according to the standard.

Annex: Resource Requirements

HLT MLT3 M01 0222 **Providing Motivated Competent and Compassionate service**				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Learner)
A.	**Learning Materials**			
1.	TTLM	• Flip chart • Posters • Job aids	25	1:1
2.	Textbooks	• Training modules • Text books	25	1:1
3.	Reference Books	• National health policy • Ethics guidelines • CRC modules	10	1:3
3.1	Site survey	Kumer,2017,6th edition	5	1:5
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard (colleges library)	1	
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard	As required	
3	Pencil and rubber	Standard		
4	Graph paper	Standard		

5	Bucher paper	standard	10	1:3
6	Art line marker		12 per pack	
7	Printer ink	HP Laser Jet	4	
8	White board marker	6 per pack	15	
9	Plaster	Roll	1	
D.	**Tools and Equipments**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector Sony	1	1:25
3.	Printer	HP Laser Jet	1	1:25
4	Photocopy machine	Canon	1	1:25
5	Scanner	Smart	1	1:25
6	Back up	Smart	1	1:25
7	White board	110X80mm	1	1:25

LEARNING MODULE 2
TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III
MODULE TITLE : Applying Infection Prevention Techniques and Workplace Occupational Health Safety (OHS)
MODULE CODE : HLT MLT3 M02 0222
NOMINAL DURATION : 96 Hours
MODULE DESCRIPTION : This module describes knowledge, skills and attitude required for workers to comply with infection control policies and procedures. All procedures must be carried out in accordance with current infection control guidelines to ensure the workplace is safe and without risks to the health of employees, clients and/or visitors.
LEARNING OUTCOMES At the end of the module the learner will be able to: **LO1.** Apply infection prevention techniques **LO2**. Establish and maintain participative arrangements **LO3**. Assess and control risks and hazards **LO4**. Limit contamination **LO5** Clean environmental surfaces
MODULE CONTENTS: **LO1. Apply infection prevention techniques** 1.1. Basic components of disease transmission 1.2. Essential elements of infection prevention 1.3. Applying universal and standard precaution 1.4. Demonstrating additional precautions measures 1.5. Minimizing Contamination of materials, equipment and instruments 1.6. Performing instrumental processing 1.7. Disposing infectious/hazardous waste materials 1.8. Personal protective equipment (PPE) 1.9. Applying proper hand washing techniques **LO2. Establish and maintain participative arrangements** 2.1 Participative processes in accordance with OHS legislation, regulations and standards. 2.2 Dealing with Issues of participation and consultation

2.3 Providing Information about the outcomes of participation and consultation

2.4 Establishing and monitoring Systems for keeping OHS records

LO3 Assess and control risks and hazard

3.1. Developing organizational procedures for hazard identification, assessment and control of risks.

3.2. Identification of all hazards at the planning, design and evaluation stages

3.3. Developing and maintaining hazard risk control measures

3.4. Identifying inadequacies in existing risk control measures

3.5. Protocols for care following exposure to blood or other body fluids

LO4. Limit contamination

4.1 Demarcating and maintaining clean and contaminated zones

4.2 Keeping records, materials and medicaments in a clean zone

4.3 Confining contaminated instruments and equipment in a well designated zone

LO5 Clean environmental surfaces

5.1 Wearing Personal protective equipment (PPE)

5.2 Removing dust, dirt and physical debris from worksurfaces

5.3 Cleaning work surfaces

5.4 Drying work surfaces

5.5 Replacing surface covers where applicable

5.6 Maintaining and storing equipment

LEARNING METHODS:

- Lecture
- Demonstration
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Interview
- Written test
- Demonstration/Observation

ASSESSMENT CRITERIA:

LO1 Apply infection prevention techniques

- Basic components of disease transmission are identified
- Essential elements of infection prevention are implemented
- Universal precaution and standard precaution are applied
- The application of additional precautions is demonstrated when standard precautions alone may not be sufficient to prevent transmission of infection
- Contamination of materials, equipment and instruments is minimized by aerosols and splatter
- Instrument processing is performed
- Infectious/hazardous waste materials are safely disposed according to waste management policies and procedures (3S'si.e sort, shine and set in order)
- Personal protective equipment is prepared and used
- Proper hand washing techniques are applied

LO2 Establish and maintain participative arrangements

- Appropriate participative processes are established and maintained in accordance with OHS legislation, regulations and industry standards
- Issues raised through participation and consultation are dealt with promptly and effectively
- Information to employees about the outcomes of participation and consultation is provided in a manner accessible to employees.
- Systems are established and monitored for keeping OHS records to meet regulatory requirements, allow identification of patterns of hazardous incidents, occupational injuries and diseases within the area of managerial responsibility.

LO3 Assess and control risks and hazards

- Occupational health safety standards are identified
- Organizational procedures for hazard identification, assessment and control of risks are developed.
- Identification of all hazards is made at the planning, design and evaluation stages of any changes in the workplace
- Procedures for selection and implementation of risk control measures are developed and

maintained in accordance with the hierarchy of control.

- Inadequacies in existing risk control measures are identified in accordance with the hierarchy of control and provide promptly resources enabling implementation of new measures.
- Protocols are followed for care following exposure to blood or other body fluids as required

LO4 Limit contamination

- Occupational health safety standards are identified
- Organizational procedures for hazard identification, assessment and control of risks are developed.
- Identification of all hazards is made at the planning, design and evaluation stages of any changes in the workplace
- Procedures for selection and implementation of risk control measures are developed and maintained in accordance with the hierarchy of control.
- Inadequacies in existing risk control measures are identified in accordance with the hierarchy of control and provide promptly resources enabling implementation of new measures.
- Protocols are followed for care following exposure to blood or other body fluids as required

LO5 Clean environmental surfaces

- Personal protective clothing and equipment are worn during cleaning procedures
- All dust, dirt and physical debris are removed from work surfaces
- All work surfaces are cleaned with a neutral detergent and warm water solution before and after each session or when visibly soiled
- All work surfaces are dried before and after use
- Surface covers are replaced where applicable
- Cleaning equipment are maintained and stored

Annex: Resource Requirements

HLT MLT 3 M02 0222 **Applying Infection Prevention Techniques and Workplace OHS**				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Flip chart • Posters • Job aids	25	1:1
2.	Textbooks	• Training modules • Text books	25	1:1
3.	Reference Books	• National health policy • IP guidelines • IP modules	10	1:3
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard	1	
3.	Demonstration room	5*10	1	1:6
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	

7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard	1	
D.	**Tools and Equipment**			
1	Computer	Lap top	1	1:25
2	LCD projector	LCD Projector	1	1:25
3	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25

LEARNING MODULE 3
TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III
MODULE TITLE : Providing First Aid and Emergency Response
MODULE CODE : HLT MLT3 M03 0222
NOMINAL DURATION : 140 Hours
MODULE DESCRIPTION : This module covers knowledge, skills and attitude required to recognize and respond to life threatening emergencies using basic life support, provide first aid response, management of casualty(s), the incident and other first aiders, until the arrival of medical or other assistance.
LEARNING OUTCOMES At the end of the module the learner will be able to: **LO1.**Assess and identify client's condition **LO2.** Provide first aid service **LO3.** Prepare, evaluate and act in an emergency **LO4.** Communicate details of the incident **LO5.** Refer client requiring further care **LO6.** Evaluate own performance
MODULE CONTENTS: **LO1. Assess and identify client's condition** 1.1. Basic principles of first aid 1.2. Assessing and minimizing hazards 1.3. Minimizing immediate risk 1.4. Identifying and recognizing emergency situation 1.5. Monitoring vital signs and state of consciousness 1.6. Obtaining history of the event 1.7. Safety equipment and aids for emergency care 1.8. Identifying and evaluating options for action in cases of emergency 1.9. Organizational emergency procedures and policies 1.10. Occupational health and safety procedures

LO2. Provide first aid service

2.1 Communication style to casualty's level of consciousness

2.2 Using available resources and equipment

2.3 Basic ABCDE rules of life

2.4 Responding the casualty in a culturally aware, sensitive and respectful manner

2.5 Explaining relevant first aid procedures

2.6 Seeking consent from casualty prior to first aid management

2.7 Applying first aid management based on principles and procedures

2.8 Operating first aid equipment

2.9 Implementing client care techniques

2.10 Safe manual handling techniques

2.11 Monitoring and responding casualty's condition

2.12 Finalizing casualty management

LO3. Prepare, evaluate and act in an emergency

3.1 . Options for action in cases of emergency and group control for evacuation

3.2 . Occupational health, safety procedures and policies

3.3 . Removing clients from danger

3.4 . Assessing and evaluating potential hazards

LO4. Communicate details of the incident

4.1. Seeking first aid assistance

4.2. Requesting ambulance support and/or appropriate medical assistance

4.3. Observing casualty's condition and management activities

4.4. Adopting a communication style to casualty's level of consciousness

4.5. Assessing and reporting casualty's condition, management and responses

4.6. Maintaining confidentiality and privacy principles

LO5. Refer client requiring further care

5.1 . Documenting relevant client history

5.2 . Ensuring documentation for referral procedures

5.3 . Conveying appropriate information to individuals involved in referral

5.4 . Maintaining client care during referral

5.5 . Maintaining client confidentiality

LO6. **Evaluate own performance**

6.1. Seeking feedback from appropriate clinical expert

6.2. Possible psychological impacts on rescuers

6.3. Participating in debriefing/evaluation

LEARNING METHODS:

- Lecture
- Demonstration
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Practical assessment
- Written exam/test
- Questioning or interview

ASSESSMENT CRITERIA:

LO1.**Assess and identify client's condition**

- Basic principles of first aid are addressed
- Hazards in the situation that may pose a risk of injury or illness to self and others are identified, assessed and minimized
- Immediate risk to self and casualty's health and safety is minimized by controlling any hazard in accordance with work health and safety requirements
- Emergency situation is recognized and hazards to health and safety of self and others are identified
- Vital signs and state of consciousness are checked and monitored in accordance with guidelines.
- History of the event is obtained.
- Safety equipment and aids required for emergencies are selected, used, maintained and stored in good order
- Options for action in cases of emergency are identified and evaluated
- Organizational emergency procedures and policies are correctly implemented
- Occupational health and safety procedures and safe working practices are applied

LO2. Provide first aid service

- Communication style to match the casualty's level of consciousness is adopted
- Available resources and equipment are used to make the casualty as comfortable as possible
- Basic ABCDE rules of life are applied.
- The casualty is responded to in a culturally aware, sensitive and respectful manner
- Relevant first aid procedures are determined and explained to provide comfort
- Consent is sought from casualty prior to applying first aid management
- First aid management is provided in accordance with established first aid principles and procedures
- Clinical first aid equipment are correctly operated as required for client management according to manufacturer/supplier's instructions and procedures
- Client care techniques are implemented in accordance with procedures and techniques applicable to standards.
- Safe manual handling techniques are used consistently
- Casualty's condition is monitored and responded in accordance with established first aid principles and procedures
- Casualty management is finalized according to casualty's needs and first aid principles

LO3. Prepare, evaluate and act in an emergency

- Options for action in cases of emergency and group control strategies for evacuation are identified
- Occupational health and safety procedures and policies are correctly implemented
- Clients and other individuals are removed from danger.
- Assessed and evaluated potential hazards are reported and documented.

LO4. Communicate details of the incident

- First aid assistance from others is sought in a timely manner and as appropriate
- Ambulance support and/or appropriate medical assistance are/is requested according to circumstances
- Observation of casualty's condition and management activities accurately is conveyed to ambulance services/relieving personnel

- A communication style is adopted to match the casualty's level of consciousness
- Details of casualty's physical condition, changes in condition, management and responses are accurately assessed and reported to management in line with established procedures
- Confidentiality of records and information is maintained in line with privacy principles and statutory and/or organization policies

LO5.Refer client requiring further care

- Relevant client history is documented according to standard guidelines.
- Documentation for referral procedures is ensured.
- Appropriate information to individuals involved in referral is conveyed to facilitate understanding and optimal care.
- Maintain client care until responsibility is taken over by staff of the receiving health institutions during referral.
- Client confidentiality is maintained at all times and levels.

LO6. Evaluate own performance

- Feedback is sought from appropriate clinical expert
- The possible psychological impacts on rescuers involved in critical incidents is recognized

Annex: Resource Requirements

HLT MLT 3 M03 0222 Providing First Aid and Emergency Response				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	25	1:1
3.	Reference Books	• National health policy • IP guidelines • IP modules	10	1:3
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard (colleges library)	1	
3.	Demonstration room		1	1:6
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	

7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Roll	1	
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25

LEARNING MODULE 4

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE: Performing equipment handling and maintenance

MODULE CODE: HLT MLT3 M04 0222

NOMINAL DURATION: 180 Hours

MODULE DESCRIPTION: This module covers knowledge, skills and attitude required to equipment handling and maintenance procedure. Identifying different parts of equipments, implementing equipment operation, performing calibration and maintenance using standard calibration procedures. These procedures specify all associated reference standards, materials, equipment and methods to be used and the required parameters or quantities and ranges to be tested, including the criteria for rejection or approval.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Identify different parts of laboratory equipment

LO2. Perform equipment Operation and Handling

LO3. Perform equipment calibration

LO4. Perform equipment maintenance

LO5.Keep records of equipment maintenance and calibration report

MODULE CONTENTS:

LO1. Identify different parts of laboratory equipment

1.1 Describing parts of laboratory equipments

1.2 Describing the function of laboratory equipments

1.3 Ensuring appropriate use of laboratory equipments.

1.4 Describing new instructions or modifications to methods

LO2. Perform equipment Operation and Handling

2.1 Monitoring environmental conditions of equipments

2.2 Utilization of appropriate PPE

2.3 Identifying the principle of each equipment.

2.4 Implementing equipment operation

2.5 Considering equipment Safety precaution and handling

LO3. Perform equipment calibration

3.1 Confirming requirements of equipments for calibration procedure.

3.2 Selecting authorized calibration procedures

3.3 Specifying reference standards and assembling associated equipments

3.4 Verifying the performance of reference standards and measuring equipment

3.5 Adjusting or calibrating equipments

3.6 Confirming the reading of the measuring results are valid and recording data (before and after adjustment)

3.7 Analyzing generated calibration report to detect trends or inconsistencies.

3.8 Listing calibration approval and rejection requirements.

3.9 Arranging internal peer checking of calibration procedure, data and results and incorporating the feedback.

3.10 Comparing test results with other laboratories.

3.11 Confirming calibration procedures are fit for purpose.

3.12 Looking for appropriate advice when interpretation for unusual results.

LO4 Perform equipment maintenance

4.1. Conducting preventive maintenance activities

4.2. Performing troubleshooting for identified errors

4.3. Identifying equipment errors.

4.4. Applying knowledge and practice to verify equipment maintenance.

4.5. Identifying and minimizing potential sources of measurement error

LO5 Keep records of equipment maintenance and calibration report

5.1 Reporting and presenting the procedure for approval

5.2 Preparing and issuing the calibration final report.

5.3 Reporting any non-compliance and taking action.

5.4 Attaching calibration labels, equipment stickers, quality control tags and tamper resistant seals.

5.5 Documenting compliance/non-compliance.

5.6 Retaining test equipment/measurement standards and results.

LEARNING METHODS:

• Lecture

• Demonstration

• Group discussion

• Exercise

• Individual assignment

ASSESSMENT METHODS:

• Interview

• Written test

• Demonstration/Observation

ASSESSMENT CRITERIA:

LO.1 Identify different parts of laboratory equipment

- Parts of laboratory equipments are described
- Function of laboratory equipments are described
- Appropriate use of laboratory equipments is ensured.
- All new instructions or modifications to methods are described to ensure repeatability of test.

LO.2 Perform equipment Operation and Handling

- Environmental conditions are monitored to ensure proper function of equipment according to manufacturer specification.
- The appropriate PPE are used during equipment operation
- Principle of each equipment is identified.
- Equipments are properly operated according to the manufacturer recommendation.
- Safety precaution are considered during equipment operation and handling

LO.3 Perform equipment calibration

- All measuring equipment are confirmed to meet the laboratory's specification requirements and complied fully with the calibration procedure
- The authorized calibration procedures are selected in accordance with enterprise procedures
- Specified reference standards and associated equipment are assemble and set up prior to testing

- Performance of reference standards and measuring equipment is verified prior to use and adjusted or calibrated, as necessary
- Confirm readings are the result of a valid measurement and record data as required (before and after adjustment)
- Device under test is adjusted to bring readings within specification and data recorded (after and after adjustment), if required
- Generated calibration report is analyzed to detect trends or inconsistencies that would significantly affect the accuracy or validity of test results
- The requirements are listed for calibration approval and rejection.
- Internal peer checking of calibration procedure, data and results are arranged for and feedback incorporated.
- Results are compared with those obtained by other laboratories, if applicable.
- Confirm that the calibration procedure is fit for purpose and relevant to the client's needs
- Appropriate advice is sought when interpretation of results is outside authorized scope of approval

LO.4 Perform equipment maintenance

- Preventive maintenance activities are conducted according to manufacture requirement of each equipment.
- Troubleshooting is performed for identified errors according to manufacturer's recommendation
- Equipment having errors that requires trained biomedical engineers are identified
- Knowledge and practice is applied to verify equipment maintenance by service engineers
- Potential sources of measurement error are identified and minimized

LO5 Keep records of equipment maintenance and calibration report

- The procedure is reported and presented to appropriate personnel for approval before use
- Prepare and issue a final report on the job/item detailing testing carried out, traceability, statement of compliance and relevant information as required
- Any non-compliance is reported and next course of action verified.
- Calibration labels, equipment stickers, quality control tags and tamper resistant seals are attached, as required in enterprise procedures
- Compliance/non-compliance is documented with requirements of test and/or specifications
- Test equipment/measurement standards and results are stored in accordance with enterprise procedures

Annex: Resource Requirements

HLT MLT3 M04 0222 Performing equipment handling and maintenance				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	5	1:5
3.	Reference Books			
3.1	District Laboratory practice in tropical countries Part I	Monica cheesbrough. second edition; 2009	5	1:5
4.	Journals/Publication/Magazines	• Equipment quality Indicators/latest • Fact sheets • Standard formats	10	1:3
4.1				
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2	Laboratory room	5*10 m	1	1:25
3.	Library	Standard	1	
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3

6	Marker	Standard	12 per pack	
7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
10	Gloves	Standard		
11	Micro tips	Standard		
12	Distilled water	Standard	1	1:25
13	Standard	solution	1	1:25
14	Calibrator	solution	1	1:25
15	Reference materials	solution	1	1:25
16	Filter Paper	Standard		
17	Pasteur pipette	Standard		
18	Lens Paper	Standard		
19	Cuvette	1cm		
20	Test tube	Standard		
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25
8	Microscope	Binocular & Light	5	1:5
9	Centrifuge	Macro type	2	1:15
10	Hematocrite centrifuge	Microtype	2	1:15
11	Tachometer	standard	1	1:25
12	clinical chemistry analyzer	Photometer and Semi-automated	1	1:25
13	Balance	Manual	1	1:25
14	Digital balance	Sensitive type	1	1:25
15	Micropipette	0-50 µl 50-100 µl	2 for each	1:15

		100-1000 µl		
16	Complete blood cell count analyzer	Three differential	1	1:25
17	Autoclave	Standard		
18	Oven	Standard		

LEARNING MODULE 5
TVET-PROGRAMME TITLE: **Medical Laboratory Techniques Level III**
MODULE TITLE: Preparing Laboratory Solutions
MODULE CODE: HLT MLT3 M05 0222
NOMINAL DURATION: 180 Hours
MODULE DESCRIPTION: This module covers knowledge, skills and attitude required to choose reagent grades, determine desired quantity, perform required dilution, prepare solution, standardize solution, and monitor the quality of solutions and storage condition.
LEARNING OUTCOMES At the end of the module the learner will be able to: LO1. Prepare a working solution LO2. Standardize solution LO3. Monitor the quality of laboratory solutions LO4. Maintain safe work environment
MODULE CONTENTS: **LO1. Prepare a working solution** 1.1 Selecting standard procedure for stock and working solution preparation. 1.2 Selecting Materials and solvent 1.3 Calculating and recording data 1.4 Measuring reagents for solution preparation 1.5 Selecting and assembling laboratory Equipment's 1.6 Mixing or diluting working solution 1.7 Preparing Solutions 1.8 Labeling and storing Solutions 1.9 Recording Working solution **LO2. Standardize solution** 2.1. Assembling laboratory equipment 2.2. Performing Serial dilutions 2.3. Standardizing the solution to specified range and precision 2.4. Determining concentration of standardize solutions 2.5. Labeling and storing standardized Solutions

LO3.Monitor the quality of laboratory solutions

3.1 Checking the quality of prepared solution

3.2 Monitoring the quality of stored solution

3.3 recording Quality monitoring

4. Maintain safe work environment

4.1. Applying safety precautions

4.2. Using appropriate laboratory glassware and measuring equipment

4.3. Using PPE and established safe work practices.

4.4. Minimizing generation of waste and environmental impacts

4.5. Ensuring safe collection of laboratory hazardous waste

4.6. Cleaning and storing Glassware, reagents and equipment.

LEARNING METHODS:

- Lecture
- Demonstration
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Interview
- Written test
- Demonstration/Observation

ASSESSMENT CRITERIA:

LO.1 Prepare a working solution

- The relevant/appropriate standard procedure is selected for stock solution and/or working solutions preparation
- Materials and solvent of specified purity are selected
- Data is calculated and recorded
- Appropriate quantities of reagents are measured for solution preparation and record data
- Specified laboratory Equipment and appropriate grade of glassware are selected and assembled
- The required working solution is mixed or diluted in accordance with procedures
- Solutions are prepared to achieve homogeneous mix of the specified concentration
- Solutions are labeled and stored to maintain identity and stability
- Working solution details are recorded in laboratory register

LO.2 Standardize solution

- Appropriate laboratory equipment are assembled
- Serial dilutions are performed, as required
- The solution to the required specified range and precision is standardized
- The concentration of standardize solutions is determined
- Solutions are labeled and stored to maintain identity and stability re-standardized if require

LO.3 Monitor the quality of laboratory solutions

- The quality of prepared solution is checked before use
- The quality of stored solution is monitored
- Quality monitoring details are recorded

LO4 Maintain safe work environment

- Appropriate safety precautions are applied for use of laboratory equipment and hazardous chemical materials
- Appropriate laboratory glassware and measuring equipment are used
- Established safe work practices and PPE are used to ensure personal safety and that of other laboratory personnel
- Spills are cleaned up using appropriate techniques to protect personnel, work area and environment
- Generation of waste and environmental impacts are minimized
- The safe collection of laboratory hazardous waste for subsequent disposal is ensured
- Glassware and equipment are cleaned and stored in accordance with enterprise procedures
- Equipment and reagents are stored as required

Annex: Resource Requirements

HLT MLT3 M05 0222 Preparing Laboratory Solutions				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Learner)
A.	**Learning Materials**			
1.	TTLM		25	1:1
2.	Textbooks			
3.	Reference Books			
3.1	District laboratory practice in tropical countries. Part I	Monica Cheesbrough.second;2009	5	1:5
3.2	District laboratory practice in tropical countries. Part II	Monica Cheesbrough. Second; 2005	5	1:5
3.3	Medical Laboratory Technology A Procedure manual for Routine Diagnostic tests	Kani L Mukhjee, volume I, II, III 1988.	5	1:5
3.4	Production of basic diagnostic Laboratory reagents	WHO Regional Office for the Eastern Mediterranean; 1995	5	1:5
3.5	Haematology for Medical Laboratory Technology Students; lecture note series.	Zewdnesh S. 2002.	5	1:5
3.6	Parasitology for Medical Laboratory Technology., Students lecture notes series	Girma M, Mohamed A, 1st edition; 2002.	5	1:5
3.7	Medical bacteriology for medical	Abilo T. 1st	5	1:5

	laboratory, Technology Students Lecture notes series	edition; 2002.		
4.	Journals/Publication/Magazines			
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library			
3.	Laboratory room	5*10m	1	1:25
C.	**Consumable Materials**			
1.	paper	A4	5rim	1:5
2.	pencil	HB	5	1:5
3.	pen	Ball point	5	1:5
4.	Common stock solution	Standard		
6.	Glove	standard		
7.	Filter paper	standard		
8.	Distilled water	standard		
9.	Gauze	standard		
10.	PPE material	standard		
D.	**Tools and Equipments**			
1.	Ph meters	standard		
2.	Balances	standard		
3	Water baths	standard		
4	Measuring cylinders, beakers, conical flasks, volumetric	standard		
5	Flasks and pipettes	standard		
6	funnels	standard		
7	Fume cupboards	standard		
8.	LCD projector	standard		

LEARNING MODULE 6

TVET PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE: Collecting and Processing Medical Samples

MODULE CODE: HLT MLT3 M06 0222

NOMINAL DURATION: 300 Hours

MODULE DESCRIPTION: This module covers knowledge, skills and attitude required to apply concepts of physiology and anatomy of human, collect, handle, and transport and prepare samples for testing at work site or field using specified equipment and standard or routine procedures in a way that ensures the integrity of subsequent samples.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Apply concept of physiology and anatomy

LO2. Prepare to collect samples

LO3. Collect and handle sample

LO4. Transport and handle sample

LO5. Receive and log sample

LO6. Distribute samples

LO7. Prepare sample for testing.

LO8. Maintain safe work environment

MODULE CONTENTS:

LO1. Apply concept of physiology and anatomy.

1.1 Identifying human physiology and anatomy

1.2 Identifying type and nature of samples

1.3 Identifying time of samples collection and collection sites

LO2. Prepare to collect samples

2.1 Identifying the purpose, priority and scope of the sampling request

2.2 Identifying hazardous site and reviewing safety procedures

2.3 Confirming type of samples, site of collection , time of collection and how to collect

2.4 Availing all necessary materials and monitoring stock.

2.5 Ensuring cleanliness of all items

2.6 Checking all items are available

2.7 Confirming sequences of handling and any permit requirements

2.8 Checking vehicle and communication devices

LO3.Collect and handle sample

3.1 identifying and organizing sample collection areas.

3.2 Removing covering and locks of secured devices.

3.3 Looking for advice if the required samples cannot be collected

3.4 Selecting and using the required sampling tools

3.5 Following sample collection procedures

3.6 Labeling information

3.7 Collecting the desired type and quantity of samples

3.8 Recording sample appearance, environmental conditions and any other factors

3.9 Maintaining sample integrity and confidentiality of information

LO4. Transport and handle sample

4.1. Confirming the number and nature of samples on arrival

4.2. Ensuring samples have been matched to request format

4.3. Applying requirements for sample transport

4.4. Identifying accompanying documents for any special needs

4.5. Completing required documentations

4.6. Packing samples in the specified transport containers

4.7. Maintaining sample integrity

4.8. Delivering samples to reception points

4.9. Maintaining confidentiality of information

4.10. Maintaining the states of transport containers

LO5. Receive and log sample

5.1 Confirming the number and nature of samples/items

5.2 Checking samples are matched with request forms

5.3 Completing required documentations.

5.4 Recording date and time of arrival

5.5 Entering all information into the Laboratory Information Management System (LIMS)/log sheet

5.6 Applying required document tracking mechanisms

5.7 Processing 'Urgent' test requests

5.8 Ensuring security and traceability of all information.

LO6. Distribute samples

6.1. Grouping samples requiring similar testing

6.2. Distributing samples to each laboratory department

6.3. Distributing request forms for data entry

LO7. Prepare sample for testing.

7.1. Performing physical separation of the samples

7.2. Performing chemical separation

7.3. Preparing sub-samples and back-up sub-samples

7.4. Labeling all sub-samples ensure traceability and stored in accordance with SOPs.

7.5. Distributing sub-samples to defined work stations to maintain sample integrity

7.6. Monitoring and controlling sample conditions before, during and after processing.

LO8. Maintain safe work environment

8.1. Establishing work practices and using PPE

8.2. Minimizing environmental impacts of sampling and generation of waste.

8.3. Cleaning equipment, containers, work area and vehicles

8.4. Avoiding hazards due to laboratory equipment.

8.5. Ensuring the safe collection of all hazardous wastes disposal

8.6. Cleaning splashes and spillages immediately

8.7. Segregating laboratory wastes with safety policy

8.8. Disposing wastes.

8.9. Reporting accidents and spillages

LEARNING METHODS:

- Lecture
- Demonstration
- Simulation
- Role-play
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Written exam/test
- Practical assessment
- Questioning or interview
- Oral examination

ASSESSMENT CRITERIA:

LO1. Apply concept of physiology and anatomy.

- Concept of physiology and anatomy of human are identified,
- Type and nature of samples are identified
- Time of samples collection and collection sites are identified

LO2. Prepare to collect samples

- The purpose, priority and scope of the sampling request is Identified
- Site hazards are identified and enterprise safety procedures reviewed
- Type of sample, site of collection , time of collection and how to collect sample are confirmed
- All necessary materials are availed and its stock is monitored.
- Pre-use and cleanliness checks of all items are ensured
- All items are checked against given inventory and packed to ensure safe transport.
- Handling sequence and any permit requirements are confirmed
- Vehicle and communication devices are checked in working order
- Required transport containers and materials are checked in the vehicle.

LO3.Collect and handle sample

- Sample collection area are identified and organized.
- Security devices, such as locks and covers are removed as required.
- Advice is sought if the required samples cannot be collected or if procedures require modification.
- The required sampling tools equipment are selected and used in accordance with given procedures
- Sampling procedures are closely followed to obtain required samples and maintain their integrity.
- Labeling information is recorded in accordance with enterprise/legal traceability requirements.

- Desired type and quantity of sample are collected based on standard operating procedure
- Sample appearance, environmental conditions and any other factors that may impact on sample integrity are recorded, when required
- Sample integrity and confidentiality of information are maintained at all times#
- Samples/Items are delivered to each laboratory department in accordance with enterprise procedures

LO4. Transport and handle sample

- Confirm the number and nature of samples/items to be handled on arrival
- Ensure samples have been matched to request format
- Requirements are applied to the transport of samples and/or equipment
- Be alert laboratory personnel to any special needs are identified on documents accompanying the samples/ items
- Required documentation are completed at handling point
- Samples are packed in the specified transport containers and under the required conditions/on triple package /
- Sample integrity is maintained at all times
- Samples are delivered to reception point in accordance with enterprise procedures
- Confidentiality of information is maintained
- Vehicle is maintained according to enterprise requirements
- State of transport containers is maintained to ensure that are fit for purpose
- Enterprise procedures are followed for the cleaning/decontamination of equipment and vehicle as necessary
- Samples to the required collection point are delivered and all documentation completed to ensure traceability.

LO5. Receive and log sample

- Confirm the number and nature of samples/items to be received
- Samples are checked and matched with request forms before they are accepted.
- Required documentation are completed at handling point
- Date and time of arrival of samples at enterprise are record
- Samples are entered into the Laboratory Information Management System (LIMS)./log sheet

- Required document tracking mechanisms are applied.
- 'Urgent' test requests are processed according to enterprise requirements.
- Security and traceability of all information, laboratory data and records are ensured
- Pre-use and cleanliness checks of all items are conducted to ensure they are fit for purpose.

LO6. Distribute samples

- Samples requiring similar testing requirements are grouped
- Samples are distributed to each laboratory department maintaining sample integrity
- Request forms for data entry or filing in are distributed accordance with enterprise procedures.
- Check that samples and relevant request forms have been received by laboratory personnel

LO7. Prepare sample for testing.

- Physical separation of the samples is performed, as required
- Chemical separation of the samples is performed, as required
- Sub-samples and back-up sub-samples that are representative of the source are prepared
- All sub-samples are labeled to ensure traceability and stored in accordance with SOPs.
- Sub-samples are distributed to defined work stations maintaining sample integrity and traceability requirements.
- Sample conditions are monitored and controlled before, during and after processing.
- Defined preparation and safety procedures are followed to limit hazard or contamination to samples, self, work area and environment.

LO8. Maintain safe work environment

- Established work practices and PPE are used to ensure personal safety and that of others.
- Environmental impacts of sampling and generation of waste are minimized.
- All equipment, containers, work area and vehicles are cleaned according to enterprise procedures.
- Hazards due to laboratory equipment are avoided before storage.
- The safe collection of all hazardous for waste disposal is ensured

- Splashes and spillages are cleaned up immediately using appropriate techniques and precautions.
- All laboratory wastes are segregated in accordance with safety policy in accordance with waste disposal
- All wastes are disposed of in accordance with enterprise procedures
- Appropriate protective equipment is used to ensure personal safety when sampling, processing, transferring or disposing of samples.
- All accidents and spillages are reported to supervisor.

Annex: Resource Requirements

HLT MLT3 M06 0222 Collecting and Processing Medical Samples				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	25	1:1
3.	Reference Books		6	1:5
3.1	District Laboratory practice in tropical countries Part I	Monica cheesbrough.2nd; 2009	5	1:5
3.2	District Laboratory practice in tropical countries Part II	Monica cheesbrough.2nd; 2005	5	1:5
4.	Journals/Publication/Magazines			
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2	Laboratory room	5*10 m	1	1:25
3.	Library	Standard (colleges library)	1	
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		

5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	
7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
10	Gloves	Standard		
11	Swabs	Standard		
12	Urine cup	Standard	1	1:25
13	Stool cup	Standard	1	1:25
14	Coagulated test tubes	Standard	1	1:25
15	Anti-coagulated test tubes	Standard	1	1:25
16	Request paper	Standard		
17	Pasteur pipette	Standard		
18	Sputum cup	Standard		
19	Blood culture bottle	Standard		
20	70% alcohol	Standard		
21	Cotton	Standard		
22	Syringe with needle	Standard		
23	Vacutainer needle with holder	Standard		
24	Capillary tube	Standard		
25	lancet	Standard		
26	Surgical blade	Standard		
27	Microscopic slide	Standard		
28	Scotch tape	Standard		
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25

8	Triple packaging	Standard	5	1:6
9	Ice box	Standard	2	1:15
10	Refrigerator	2-8^{o}C	2	1:15
11	Torniquet	Standard	5	1:5
12	Safety box	Standard		
13	Biohazard container	Standard		

LEARNING MODULE 7

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE : Applying Computer and Mobile Health Technology

MODULE CODE : HLT HES3 M07 0222

NOMINAL DURATION : 100 Hours

MODULE DESCRIPTION : This module describes the knowledge, skills and attitude required to use new or upgraded technology. The rationale behind this unit emphasizes the importance of constantly reviewing work processes, skills, and techniques in order to ensure that the quality of the entire business process is maintained at the highest possible level through the appropriate application of new technology.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Start computer, system information and features

LO2. Navigate and manipulate desktop environment

LO3. Identify the existing Health technologies

LO4. Apply the functions of technology

LO5. Evaluate new or upgraded technology performance

MODULE CONTENTS:

LO1. Start computer, system information and features (theory = 16 hours + demonstration =16 hours)

1.1. Ergonomic requirements

1.2. Occupational Health and Safety (OHS)

1.3. Computer basic functions and features

1.4. Customize desktop configuration

LO2. Navigate and manipulate desktop environment (theory = 4 hours + demonstartion = 8 hours)

2.1 Access and use desktop icons.

2.2 Window functions and roles

2.3 Desktop shortcut.

LO3. Identify the existing Health technologies (theory = 16 hours + demonstration = 32 hours).

3.1. Computer operating systems

3.2. Internet browsers

3.3. Mobile technology

3.4. M Health

3.5. E Health

3.6. Basic computer skills

LO4. Apply the functions of technology (theory = 4 hours).

4.1. Mobile/Smart phones and tablets

4.2. Functions of technology

LO5. Evaluate new or upgraded technology performance (theory = 4 hours).

5.1 Features of new or upgraded equipment

5.2 Environmental considerations

5.3 Sources of information

5.4 Feedback

LEARNING METHODS:

- Lecture
- Demonstration
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Interview
- Written test
- Demonstration/Observation

ASSESSMENT CRITERIA:

LO 1.Start computer, system information and features

- Workspace, furniture, and equipment are adjusted to suit user ergonomic requirements.
- Work organization is ensured to meet organizational and Occupational Health and Safety (OHS) requirements for computer operation.
- Computer is started or logged on according to user procedures.
- Basic functions and features are identified using system information.
- Desktop configuration is customized, if necessary, with assistance from appropriate persons.
- Help functions are used as required.

LO 2.Navigate and manipulate desktop environment

- Features are opened, closed, and accessed by selecting correct desktop icons.

- Desktop windows are opened, re-sized and closed by using correct window functions and roles.
- Shortcuts are created from the desktop, if necessary, with assistance from appropriate persons.

LO 3.Identify the existing Health technologies

- The existing knowledge and techniques to technology are applied
- Computer operating systems are utilized.
- Internet browsers are opened and manipulated to search for, send and receive information
- Situations are identified where existing knowledge can be used as the basis for developing new skills.
- Mobile technology skills are acquired and used to enhance learning and provision of standard health care
- Health techniques are used to enhance efficient utilization of resources and avoid duplication of efforts
- New and/or upgraded equipments are identified, classified and used where appropriate, for the benefit of customers as well as the health care system.

LO 4.Apply the functions of technology

- Mobile/Smart phones and tablets are used for solving organizational problems
- The functions of technology are applied to assist in solving the health and related data collection, organization, analysis and interpretation.
- Testing of new or upgraded equipment is conducted according to the specification manual.
- Features of new or upgraded equipment are applied within the organization
- Sources of information is accessed, used and interpreted relating to new or upgraded equipment

LO 5.Evaluate new or upgraded technology performance

- New or upgraded technology performance is evaluated and determined by introduced technology (mobile/ Mhealth, tablets)
- Mobiles/Smart phones and tablets are evaluated for the performance, usability and against the OHS standards
- Environmental considerations from new or upgraded equipment are determined.
- Feedback is used from appropriate performance evaluation.

Annex: Resource Requirements

HLT MLT3 M07 0222 Applying computer and Mobile Health Technology				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	25	1:1
3.	Reference Books	• National health policy • HMIS guidelines • Mobile manuals	10	1:3
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:30
2.	Computer lab with internet access	5*5m	20 computer	1:2
3.	Library	Standard (colleges library)	1	
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Ball point	As required	
3	Pencil	HB		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per	

			pack	
7	Printer ink	Laser Jet	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	Software	DHIS 2, TenaCare,SDK tools		
3.	LCD projector	LCD Projector Sony	1	1:25
4.	Printer	HP Laser Jet	1	1:25
5.	Photocopy machine	Standard	1	1:25
6.	Scanner	Smart	1	1:25
7.	Back up	Smart	1	1:25
8.	White board	110X80mm	1	1:25
9.	Smart phones	Samsung	1	1:25

LEARNING MODULE 8
TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III
MODULE TITLE : Performing Parasitological Examination
MODULE CODE : HLT MLT3 M08 0222
NOMINAL DURATION : 250 Hours
MODULE DESCRIPTION : This module covers knowledge, skills and attitude required to detect and differentiate the structure and stage of parasites using basic tests and procedures identified with the discipline of parasitological laboratory using microscope and other methods.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Identify concept of human parasitology

LO2. Process samples and associated request details

LO3. Set up and uses Microscope

LO4. Perform tests

LO5. Maintain laboratory records

LO6. Maintain a safe environment

MODULE CONTENTS:

LO1. Identify concept of human parasitology

1.1. Understanding concept of human parasitology
1.2. Identifying principle of host and parasite interaction
1.3. Differentiating life cycles and diagnostic stage of parasites
1.4. Identifying methodology of parasitological examinations
1.5. Identifying Microscope set up and uses

LO2. Process samples and associated request details

2.1. Checking samples and request form
2.2. Sorting specimens
2.3. Rejecting samples and request forms with reasons for non-acceptance
2.4. Logging acceptable samples and requested forms
2.5. Processing samples as required by requested tests
2.6. Storing Samples and sample components appropriately

LO3. Set up and uses Microscope

3.1. Setting up the light path to optimize resolution
3.2. Selecting and filtering the appropriate objectives
3.3. Ensuring the lenses are made clean
3.4. Adjusting settings and alignment of the light path

LO4. Perform tests

4.1. Selecting authorized tests for the requested investigations
4.2. Performing quality control procedures
4.3. Conducting Basic parasitological tests
4.4. Recording results
4.5. Verifying results before releasing for clinician/client
4.6. Discussing with colleague when results are panic
4.7. Storing unused sample or sample components properly

LO5. Maintain a safe environment

5.1. Using PPE and established safe work practices
5.2. Cleaning up spills using appropriate techniques
5.3. Minimizing generation of wastes
5.4. Ensuring safe disposal of biohazardous materials and other laboratory wastes

LO6. Maintain laboratory record

6.1. Entering on report forms or into computer systems.
6.2. Updating instrument maintenance logs
6.3. Maintaining Security and confidentiality

LEARNING METHODS:

- Lecture
- Demonstration
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Practical assessment
- Written exam/test

- Questioning or interview

ASSESSMENT CRITERIA:

LO1. Set up and use microscope

- Concept of human parasitology is understood
- Principle of host and parasite interaction are identified
- Life cycles and diagnostic stage of parasites are differentiated
- Methodology of parasitological examinations are identified
- Microscope set up and uses are identified

LO2. **Process samples and associated request details**

- Samples and request form details are checked before they are accepted
- Specimens are sorted according to tests requested, urgent status and volume
- Samples and request forms that do not comply with requirements to their source are returned with reasons for non-acceptance
- Acceptable samples are logged and forms requested applying required document tracking mechanisms
- Samples are processed as required by requested tests
- Samples and sample components are stored appropriately until ready for testing

LO3. **Identify concept of human parasitology**

- The light path is set up to optimize resolution
- The appropriate objectives are selected and filtered for the sample being examined
- Ensure that the lenses are made clean
- Settings and alignment of the light path are adjusted to optimize performance
- Sample is placed correctly on the stage

LO4. Perform tests

- Authorized tests that are indicated for the requested investigations are selected
- Quality control procedures are performed
- Basic parasitological tests are conducted according to documented methodologies,
- All results are recorded by noting any phenomena that may be relevant to the interpretation of results
- Results are verified before releasing for clinician/client
- Colleague is discussed when result interpretation is outside parameters of authorized

approval

- Unused sample or sample components are stored for possible future reference, under conditions suitable to maintain viability
- Tested sample or sample components are stored according to organizational sample retention policy for retesting when requested.

LO5. Maintain a safe environment

- Established safe work practices and PPE are used to ensure personal safety and that of other laboratory personnel
- Spills are cleaned up using appropriate techniques to protect personnel, work area and environment from contamination
- The generation of wastes is minimized
- The safe disposal of biohazardous materials and other laboratory wastes are ensured in accordance with enterprise procedures.

LO6. Maintain laboratory records

- Entries are made on report forms or into computer systems, accurately calculating, recording or transcribing required data as required
- Instrument maintenance logs are updated, as required
- Security and confidentiality of all clinical information, laboratory data and records are maintained

Annex: Resource Requirements

HLT MLT3 M08 0222 Performing Parasitological Examination				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Learner)
A.	**Learning Materials**			
1.	TTLM	• Flip chart • Posters • Job aids	25	1:1
2.	Textbooks	• Training modules • Text books	25	1:1
2.1	Diagnostic Medical Parasitology.	Lynne Shore Garcia 2007, 5th edition		
3	Reference Books			
3.1	Essentials of Medical Parasitology	Apurba Sankar Sastry and Sandhya Bhat K.2014	10	1:3
3.2	Parasitology for medical and clinical laboratory professionals	John W. Ridley 2012		
3.3	Medical Parasitology for Medical Laboratory technology students	Awol M, Cheneke W. 2007		
3.4	Medical Parasitology: Lecture Notes for r Health Science Students.	Dawit Assafa, et al. 2004		
3.5	Clinical Parasitology: A Practical Approach.	Elizabeth A. Gockel-Blessing 2013, 2nd edition		
B.4.	Journals/Publication/Magazines			
	Learning Facilities & Infrastructure			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard	1	
3.	Demonstration laboratory	5*10	1	1:25
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5

2.	Pen		As required	
3	Pencil and rubber			
4	Graph paper			
5	Bucher paper	SinArtline	10	1:3
6	Art line marker		12 per pack	
7	Printer ink	HP Laser Jet	4	
8	White board marker	6 per pack	15	
9	Plaster	Rol3		
10	slide and cover slide	50 pk of 100 pcs each		
11	10% Formalin	standard	2 bottles	
12	Ether/Benzene	standard	2 bottles	
13	Zinc Sulphate/Acetate	standard	2 bottles	
14	Physiological Saline	standard	2 bottles	
15	Romanosky stains	standard	4 bottles	
17	AFB stain	standard	1 bottle	
18	Eosin stain	standard	1 bottle	
19	Lugols iodine	standard	1 bottle	
20	NaCl 10 g/l	standard	1 bottle	
21	Trichrom stain	standard	1 bottle	
22	Gauze	standard	2 roll	
23	Filter paper	standard		
24	Spatula and spoon	standard		
25	Stool cup	standard		
26	Aluminum foil	standard		
27	RDT kit	Standard		
28	Applicator stick	Standard	5 boxes	
29	Cotton swab	Standard	2 packs	
30	Oil immersion	Standard	2 bottles	
D.	**Tools and Equipments**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	HP Laser Jet	1	1:25

4	Photocopy machine	Canon	1	1:25
5	Scanner	Smart	1	1:25
6	Back up	Smart	1	1:25
7	White board	110X80mm	1	1:25
8	Gloves	Standard		
9	Laboratory Benches	Standard		
10	Centrifuges	Standard	1	1:25
11	Microscopes	Standard	8	1:3
12	Staining Jars	Standard	5	1:5
13	Colour plate illustrations	Standard		
14	Basins	Standard	5	1:5
15	Dust bin	Standard	5	1:5
16	Container for sharp instruments	Standard	5	
17	Balance	Standard	2	1:13
18	Volumetric glass wares	Standard	10	1:3
19	Apron	Standard		
20	Overhead projector	Standard	1	1:25
21	White board	Standard	1	1:25
22	LCD projector	Standard	1	1:25
23	Parasitological slide films	Standard		
24	Slide projector	Standard	1	1:25
25	Audio-Visual materials	Standard		
26	Laboratory Coat	Standard	25	1:1
27	Goggle	Standard	25	1:1
28	Funnel	Standard	10	1:3
29	Wash bottle	Standard	10	1:3
30	Shaker	Standard	5	1:5

LEARNING MODULE 9

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE: Performing Urine and Body fluid analysis

MODULE CODE: HLT MLT3 M09 0222

NOMINAL DURATION: 240 Hours

MODULE DESCRIPTION: This unit module covers knowledge, skills and attitude required to determine the type and quantity of different metabolic products in urine and body fluid, and identification of the different components of urine sediments using tests and procedures identified with the discipline of urinalysis laboratory.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Identify concept of urinalysis and body fluid

LO2. Testing methodology of urinalysis and body fluid is identified

LO3. Perform the test

LO 4. Maintain laboratory records

LO5. Maintain a safe environment

MODULE CONTENTS:

LO1 Identify concept of urinalysis and body fluid

1.1. Identifying the concept of renal physiology and anatomy.

1.2. Recognizing formation and composition of body fluids

1.3. Identifying metabolic products in urine and body fluid.

LO2 Testing methodology of urinalysis and body fluid is identified.

2.1. Processing samples and associated request details .

2.2. Sorting specimens to the requested tests.

2.3. logging accepted samples and request forms

2.4. Applying required document tracking mechanisms

2.5. Recording accepted samples and request forms

2.6. Applying required document tracking mechanisms

LO 3 Perform the test

3.1 Assembling the required equipment, materials and systems.

3.2 Selecting authorized tests

3.3 Applying quality control procedures and conducting Individual tests.

3.4 Recording all results.

3.5 Discussing abnormal result to interpret

3.6 Verifying results

3.7 Retaining samples for retesting.

LO 4 Maintain laboratory records

4.1. Entering laboratory results and Information into available plate form

4.2. Maintaining instrument logs.

4.3. Maintaining records of urine received.

4.4. Maintaining security and confidentiality

4.5. Maintaining laboratory data and records.

LO 5 Maintain a safe environment

5.1 Utilizing the established work practices and PPE.

5.2 Decontaminating spills.

5.3 Minimizing the generation of wastes.

5.4 Ensuring the safe disposal of biohazard materials and laboratory wastes

LEARNING METHODS:

- Lecture
- Demonstration
- Simulation
- Group discussion
- Exercise
- •Individual assignment

ASSESSMENT METHODS:

- Written exam/test
- Practical assessment
- •Questioning or interview

LO1. Identify concept of urinalysis and body fluid

- Concept of renal physiology and anatomy are identified
- Recognize formation and composition of body fluids
- Metabolic products in urine and body fluid are identified

- Testing methodology of urinalysis and body fluid is identified.

LO 2. Process samples and associated request details

- Specimens are sorted according to tests requested, urgent status and volume
- Samples and request forms that do not comply with requirements are returned to their source with reasons for non-acceptance
- Accepted samples and request forms are logged, applying required document tracking mechanisms
- Samples are processed as required by requested tests
- Samples and sample components are stored appropriately until ready for testing

LO 3. Perform testing

- The required equipment ,materials and systems are assembled
- Authorized tests that are indicated for the requested Investigations are selected
- Individual tests are conducted according to documented methodologies (standards), applying required quality control procedures
- All results, including /noting any phenomena that may be relevant to the interpretation of results are recorded
- Colleague is discussed when result interpretation is outside parameters of authorized approval
- Results are verified before releasing for clinician/client
- Tested sample or sample components are stored according to organizational sample retention policy for retesting when requested

LO 4. Maintain laboratory records

- Entries on report forms or into computer systems/laboratory information system are made accurately, recording or transcribing required data as required.
- Instrument logs are maintained as required.
- Records of urine received are maintained.
- Security and confidentiality of all clinical information are maintained
- Laboratory data and records are maintained

LO 5. Maintain a safe environment

- Established work practices and PPE are used to ensure personal safety OHS and that of other laboratory personnel.
- Spills are cleaned up using appropriate techniques to protect personnel, work area and environment from contamination.
- The generation of wastes is minimized.
- The safe disposal of biohazard materials and other laboratory wastes is ensured in accordance with enterprise procedures.

Annex: Resource Requirements

HLT MLT3 M09 0222 Performing Urine and Body Fluid analysis				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-		
2.1	Graff's Textbook of Routine Urinalysis and Body Fluids	Lillian A. Mundt and Kristy Shanahan. , 2nd edition; 2011	5	1:5
3	Reference Books			
3.1	Fundamentals of Urine & Body Fluid Analysis	Nancy A. Brunzel 2018, 4th edition	5	1:5
3.2	Urinalysis and Body Fluids	Susan King Strasinger 2008, 5the edition	5	1:5
3.3	Urinalysis in Clinical Laboratory Practice	Alfred H. Free and Helen M. Free 2018, 2nd edition	5	1:5
4.	Journals/Publication/Magazines	• Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2	Laboratory room	5*10 m	1	1:25
3.	Library	Standard (colleges library)	1	1:25
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3

6	Marker	Standard	12 / pack	
7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
10	Gloves	Standard		
11	Test tube rack	Standard	10	
12	Distilled water	Standard	1	1:25
13	Lens Paper	Standard		
14	Urine strip	Standard	10 pack	
15	Test tube	Standard	50	
16	Microscopic Slide	Standard	50 pk of 100 pcs	
17	Cover slide	Standard	50 pk of 100 pcs	
18	WBC diluting fluid	Standard	2 bottles	
19	Urine Cup	Standard		
20	Wright stain	Standard	2 bottles	
21	Giemsa stain	Standard	2 bottles	
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25
8	Microscope	Binocular & Light	8	1:3
9	Centrifuge	Macro type	1	1:25
10	Heamocytometer	standard	15	1:2
18	Refractometer	standard	1	1:25
19	Urinometer	standard	2	1:15
20	Ph meter	standard	1	1:25

LEARNING MODULE 10

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE : Applying Basic Health Statistics and survey

MODULE CODE : HLT MLT3 M10 0222

NOMINAL DURATION : 80 Hours

MODULE DESCRIPTION : This module describes the knowledge, skills and attitude required to apply basic health statistics and health survey methods to improve community health related activities

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1 Prepare for the application of health survey

LO2 Undertake data collection

LO3 Compile, interpret and utilize health data

LO4 Prepare and submit reports

LO5 Take intervention measures accordingly

MODULE CONTENTS:

LO1. Prepare for the application of health survey

1.1 Definition of terms

1.2 Characteristics of health statistics

1.3 Scales of measurement

1.4 Basic principles of health statistics

1.5 Calculating rates and ratios

1.6 Basic principles of health survey

LO2. Undertake data collection

2.1 Types of questionnaires

2.2 Preparing questionnaire

2.3 Pre-testing, modifying and amending questionnaire

2.4 Training on data collection procedures

2.5 Equipment/materials for data collection

2.6 Informing members of community about data collection

2.7 Inviting community leaders on data collection process

LO3 Compile, interpret and utilize health data

3.1 Collecting health data

3.2 Analyzing health data

3.3 Maintaining health data base system.

3.4 Diagrammatic presentation of data

3.5 Maintaining steps of confidentiality according to prescribed procedures.

3.6 Collecting and updating vital events

3.7 Preparing and utilizing data

LO4 Prepare and submit reports

4.1 Preparing reports using standard reporting formats

4.2 Report dissemination

4.3 Communicating Updates and reportable diseases

LO5 Take intervention measures accordingly

5.1 Discussion with key stakeholders regarding the health problems

5.2 Identifying materials throughout the consultation process

5.3 Providing feedback

5.4 Making contributions to the health problem of the community

5.5 Collecting information and data for better intervention

LEARNING METHODS:

- Lecture
- Demonstration
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Interview
- Written test
- Demonstration/Observation

ASSESSMENT CRITERIA:

LO1 Prepare for the application of health survey

- Characteristics of health statistics are identified
- Scales of measurement are explained Basic principles of health statistics are applied
- Rates and ratios are calculated
- Basic principles of health survey are applied

LO2 Undertake data collection

- Types of questionnaires are identified
- Questionnaire is prepared and made available
- Questionnaire is pre-tested, modified and amended
- Necessary personnel are trained on data collection procedures
- The necessary equipment/materials are identified to execute data collection
- Members of community are informed about data collection dates and time
- Community leaders are invited to support data collection process

LO3 Compile, interpret and utilize health data

- Necessary health data are collected as per organizational guideline
- Information collected is classified or sorted out on the basis of a clear understanding of the purpose for maintaining the database system.
- Diagrammatic presentation of data is prepared
- Steps to maintain confidentiality is followed according to prescribed procedures are taken.
- Vital events are continuously and consistently collected and updated timely in accordance with organization procedures and guidelines
- Data are prepared and utilized according to prescribed procedures and guidelines

LO4 Prepare and submit reports

- Reports are prepared using standard reporting formats
- Reports are disseminated responsible bodies
- Updates and reportable diseases are communicated to concerned bodies according to prescribed procedures and guidelines.

LO5 Take intervention measures accordingly

- Discussions are made with key stakeholders regarding the health problems
- Briefing materials throughout the consultation process are provided to identify and clarify issues of interest/concern to stakeholders and own organization
- Feedback is provided to the team leader or work team on the results of the consultation process
- Positive contributions are made to activities that develop an understanding of the factors contributing to the health problem of the community
- Further information and data are collected when needed for better interventions

Annex: Resource Requirements

HLT MLT3 M10 0222 Applying Basic Health Statistics and survey				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	25	1:1
3	Reference Books			
3.1	Epidemiology: An introductory health statistics and research books	Kenneth J.Roman. Second edition; 2012	5	1:5
3.2	Modern Epidemiology	Kenneth J.Roman, Sander Greenland, and Timothy L.Lash. Second edition; 2008		
3.3	Biostatistics	Wayne W. Daniel. Tenth edition; 2013		
3.4	Introduction to Biostatistics	Chap T. Le, Lynn E. Eberly. Second edition; 2016		
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:30
2.	Library	Standard (colleges library)	1	
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Ball point	As required	

3	Pencil and rubber	HB		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	
7	Printer ink	Laser Jet	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
D.	**Tools and Equipment**			
1	Computer	Lap top	1	1:25
2	LCD projector	LCD Projector	1	1:25
3	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
7	Back up	Standard	1	1:25
8	White board	110X80mm	1	1:25

LEARNING MODULE 11
TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III
MODULE TITLE: Performing Community Mobilization and Provide Health Education
MODULE CODE: HLT MLT3 M11 0222
NOMINAL DURATION: **96 Hours**
MODULE DESCRIPTION: This module aims to provide the trainees with the knowledge, skills and right attitudes attitude required to undertake health education, advocacy and community mobilization on identified health issues.
LO1. Conduct health education and communication **LO2.** Train model families **LO3**. Plan and Undertake advocacy on identified health issues
MODULE CONTENTS: **LO 1. Conduct health education and communication** 1.1. Concept of health and health education 1.1.1. Introduction to Health education and Communication 1.1.2. Definition of terms 1.1.3. Concepts and principles of health education and communications 1.2. Performing assessment and identify gaps 1.2.1. Assessment techniques 1.3. Organizing community and all available resources 1.3.1. Community organizations 1.3.2. Available resources 1.4. Identifying target group 1.5. Preparing health education plan. 1.5.1. Planning health education program 1.5.2. Planning process 1.6. Designing methods and approaches of health communication 1.6.1. Health education methods 1.6.2. Health education approaches 1.6.3. Health education materials 1.6.4. Effective communication skills 1.7. Providing health education service

1.8. Monitoring of service utilization and evaluation of behavioral change
   1.8.1. Health education models
   1.8.2. Monitoring of service utilization
   1.8.3. Evaluation of behavior change
1.9. Developing, promoting, implementing and reviewing strategies for internal and external dissemination of information
   1.9.1. Disseminate relevant information
   1.9.2. Relevant, policies and regulations
1.10. Maintaining work related network and relationship.
1.11. Approaches to meet communication needs

LO2. Train model families

2.1. Identifying better performing households
2.2. Establish space and time for training
2.3. Identifying and collecting resources for training
2.4. Providing training according to MOH guidelines
2.5. Provide post training follow up and monitoring
2.6. Evaluating and certifying well performing model households

LO3: Plan and Undertake advocacy on identified health issues

3.1. Preparing advocacy plan to address health issues
   3.1.1. Stages of advocacy
   3.1.2. Advocacy tools and approaches
   3.1.3. Principles of effective advocacy
3.2. Consult community representatives health needs and priorities
3.3. Identifying and consulting influential community representatives and health development armies to disseminate IEC-BCC activities
3.4. Planning, implementation and evaluation of advocacy and community mobilization
3.5. Organizing and providing continuous advocacy services in partnership with stakeholders
3.6. Using feedback for planning

TEACHING METHODS:

- Lecture and discussion
- Role play
- Group discussions

- Individual assignments
- Demonstration
- Field visit

ASSESSMENT METHODS:

Competence may be accessed through:

- Written exam/test
- Questioning
- Demonstration and observation
- Direct observation of tasks(real or simulated practice) using checklist
- Review of tasks (portfolio, logbook, report, assignment…)

Assessment criteria

LO1: **Conduct health education and communication**

- Assessment and gap identification activities are performed according to organizational manual
- Community and all available resources are organized as per content requirement
- Target group identification is done according to organizational guideline
- Health education plan is prepared as per the requirements of target group organizational guideline.
- Methods and approaches of health communication are designed according to organizational manual
- Health education service is provided as per the requirements of target group
- Monitoring of service utilization and evaluation of behavioral change is noted in accordance with organizational manual
- Strategies for internal and external dissemination of information are developed, promoted, implemented and reviewed as required in accordance with workplace guideline
- Work related network and relationship are maintained as necessary.
- Different approaches are used to meet communication needs of clients and community.

LO2: **Train model families**

- Better performing household in their day to day activity is identified
- Space and time for training is established with consultation of appropriate personnel and community representatives
- Necessary resources are identified and collected as per the training plan
- Training is provided according to MOH guideline

- Follow up and monitoring are carried out in accordance with workplace guideline
- Well performing model house hold is evaluated and certified in accordance with workplace guideline

LO3: **Plan and Undertake advocacy on identified health issues**

- Advocacy plan is prepared to address an identified health issues as per organizational work guideline
- Community representatives are consulted to determine current health needs and priorities.
- Influential community representatives and health development armies are identified and consulted to disseminate IEC-BCC activities
- Continuous advocacy services are organized and provided in partnership with the stakeholders
- Feedback from community consultation and advocacy is used as a basis for planning

Annex: Resource requirement

Performing Community Mobilization and Provide Health Education **HLT MLT 3 M11 0222**				
Item No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Learner)
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-		
2.1.	The Pocket Guide to Health Promotion	Glenn Laverack, Open University Press, (2014)		1:5
2.2.	Promoting Health A Practical Guide	Angela Scriven, 2010 Elsevier Ltd. All rights reserved		1:5
2.3.	Lecture note Introduction to health education for health extension trainees in Ethiopia	Meseret Yazachew, Yihenew Alem, Jimma University (2004)		1:5
3.	Reference Books	National health policy Health education guidelines Health education modules		1:5
4.	Journals/Publication/Magazines	Health Indicators/latest EDHS,2016 Fact sheets Standard formats		1:5
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard (colleges library)	1	
3.	Demonstration room	Standard	1	1:6
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5

2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	
7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25

LEARNING MODULE-12

TVET-PROGRAMME TITLE: Medical Laboratory Techniques Level III

MODULE TITLE : Applying 5S Procedures

MODULE CODE : HLT MLT3 M12 0222

NOMINAL DURATION : 32 Hours

MODULE DESCRIPTION : This module covers the knowledge, skills and attitude required to appl 5S techniques to his/her workplace. It covers responsibility for the day-to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

LEARNING OUTCOMES

At the end of the module the learner will be able to:

LO1. Develop understanding of quality system

LO2. Sort needed items from unneeded

LO3. Set workplace in order

LO4. Shine work area

LO5. Standardize activities

LO6. Sustain 5S system

MODULE CONTENTS:

LO1. Develop understanding of quality system

1.1. Discussing quality assurance procedures

1.2. Understanding of quality system and continuous improvement

1.3. Identifying and relating workplace requirements

1.4. Explaining the 5S system

LO2. Sort items sort needed items from unneeded

2.1 Identify items in the work area

2.2 Distinguish between essential and non-essential items

2.3 Sort items to achieve deliverables and value expected

2.4 Sort items required for regulatory or other required purposes

2.5 Placing any non-essential item appropriate place

2.6 Checking regularly essential items are in the work area

LO3 Set workplace in order

3.1 Identifying the best location for each essential item

3.2 Assigning essential item in its location

3.3 Returning each essential item after use immediately

3.4 Checking regularly essential item in its assigned location

LO4. Shine work area

4.1. Keep the work area clean and tidy

4.2. Conduct regular housekeeping activities

4.3. Ensuring the work area is neat, clean and tidy.

LO5 Standardize activities

5.1 Follow procedures

5.2 Follow checklists for activities,

5.3 Keeping the work area to specified standard

LO6. Sustain 5S system

6.1 Cleaning up after completion of job

6.2 Identifying and Specifying situations

6.3 Specifying work area

6.4 Recommending improvements to lift the level of compliance

LEARNING METHODS:

- Lecture
- Demonstration
- Group discussion
- Exercise
- Individual assignment

ASSESSMENT METHODS:

- Practical assessment
- Written exam/test
- Questioning or interview

ASSESSMENT CRITERIA:

LO1. Develop understanding of quality system

- Discuss quality assurance procedures of the enterprise or organization

- Understand the relationship of quality system and continuous improvement in the workplace
- Identify and relate to workplace requirements the purpose and elements of quality assurance (QA) system
- Explain the 5S system as part of the quality assurance of the work organization

LO2. Sort needed items from unneeded

Identify all items in the work area

- Distinguish between essential and non-essential items
- Sort items to achieve deliverables and value expected by downstream and final customers
- Sort items required for regulatory or other required purposes
- Place any non-essential item in a appropriate place other than the workplace
- Regularly check that only essential items are in the work area

LO3 Set workplace in order

- Identify the best location for each essential item
- Place each essential item in its assigned location
- After use immediately return each essential item to its assigned location
- Regularly check that each essential item is in its assigned location

LO4. Shine work area

- Keep the work area clean and tidy at all times
- Conduct regular housekeeping activities during shift
- Ensure the work area is neat, clean and tidy at both beginning and end of shift

LO5.Standardize activities

- Follow procedures
- Follow checklists for activities, where available
- Keep the work area to specified standard

LO6. Sustain 5S system

- Clean up after completion of job and before commencing next job or end of shift
- Identify situations where compliance to standards is unlikely and take actions specifie in procedures
- Inspect work area regularly for compliance to specified standard
- Recommend improvements to lift the level of compliance in the workplace

Annex: Resource Requirements

HLT MLT3 M12 0222 Applying 5S Procedures				
Item No.	**Category/Item**	**Description/ Specifications**	**Quantity**	**Recommended Ratio (Item: Learner)**
A.	**Learning Materials**			
1.	TTLM	• Prepared by the trainer	25	1:1
2.	Textbooks	-	25	1:1
3.	Reference Books	• National health policy • IP guidelines • IP modules	10	1:3
4.	Journals/Publication/Magazines	• Health Indicators/latest • EDHS,2016 • Fact sheets • Standard formats	10	1:3
B.	**Learning Facilities & Infrastructure**			
1.	Lecture Room	5*5m	1	1:25
2.	Library	Standard (colleges library)	1	
3.	Demonstration room		1	1:6
C.	**Consumable Materials**			
1.	Paper	A4	5rim	1:5
2.	Pen	Standard		
3	Pencil and rubber	Standard		
4	Graph paper	Standard		
5	Bucher paper	Standard	10	1:3
6	Marker	Standard	12 per pack	

7	Printer ink	Standard	4	
8	White board marker	Standard	15	
9	Plaster	Standard		
D.	**Tools and Equipment**			
1.	Computer	Lap top	1	1:25
2.	LCD projector	LCD Projector	1	1:25
3.	Printer	Laser Jet	1	1:25
4	Photocopy machine	Standard	1	1:25
5	Scanner	Standard	1	1:25
6	Back up	Standard	1	1:25
7	White board	110X80mm	1	1:25

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The trainers who developed the curriculum

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