



**NATIONAL OCCUPATIONAL
STANDARD FOR AN ANIMAL
SCIENCE LABORTARY TECHNOLOGIST**

APPROVING AUTHORITY

This National Occupational Standard has been prepared and published under the authority of the Zambia Qualifications Authority Board on 19th May, 2022.

ZAMBIA QUALIFICATIONS AUTHORITY

The Zambia Qualifications Authority Act No. 13 of 2011 was enacted by the Government of the Republic of Zambia to ***“provide for the development and implementation of a national qualifications framework; establish the Zambia Qualifications Authority; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing”***. Among other functions, ZAQA is responsible for ***determining national standards for any occupation***, through various sector specific National Occupational Standards Development Teams (NOSDTs).

REVISION OF NATIONAL OCCUPATIONAL STANDARDS

National Occupational Standards shall be revised after every **5 years**, or whenever necessary, by the issue of either amendments or of revised editions. It is important that users of National Occupational Standards (NOS) ascertain that they are in possession of the latest amendments or editions.

NOS DEVELOPMENT TEAM RESPONSIBLE

This National Occupational Standard was prepared by the Agriculture National Occupational Standards Development Team, upon which the following organisations were represented:

- 1.Agricultural Institute of Zamba (AIZ)
- 2.Aquaculture Development Association of Zambia (ADAZ)
- 3.Copperbelt University (CBU)
- 4.Department of Fisheries - Ministry of Fisheries and Livestock(MOFL)
- 5.Golden valley Agricultural Research Trust (GART)
- 6.Katete College of Agricultural Marketing
- 7.Ministry of Agriculture
- 8.Mulungushi University
- 9.National Research Development Centre (NRDC)
10. University of Zambia (UNZA)
- 11.Zambia Agriculture Research Institute (ZARI)
- 12.Zambia Seed Trade Association (ZASTA)
- 13.Zambia National Farmers Union (ZNFU)
- 14.Zambia Qualifications Authority (ZAQA)

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FOREWORD

The Zambia Qualifications Authority (ZAQA) is a statutory body under the Ministry of Education established by ZAQA Act No. 13 of 2011 to “**provide for the development and implementation of a national qualifications framework; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing**”.

Among other functions, ZAQA is responsible for “**determining national standards for any occupation**”, through various sector specific National Occupational Standards Development Teams (NOSDTs) of experts composed of representation from appropriate authorities, government departments, industry, academia, regulators, consumer associations and non-governmental organizations, etc.

This National Occupational Standard (NOS) has been developed by the Agriculture National Occupational Standards Development Team in accordance with the procedures and guidelines of ZAQA. All users should ensure that they have the latest edition of this publication as National Occupational Standards are revised from time to time.

This NOS shall be used by, among others, industry, employers, quality assurance bodies, awarding and professional bodies and education and training institutions, as a benchmark to identify training needs, develop job profiles/descriptions, develop curricula and learning programmes, in various sectors where the occupation exists.

JUSTIFICATION

Animal Science Laboratory Technologists are the core technologists in the animal science laboratory, and they perform a wide array of functions and duties on a daily basis. Their work is highly technical and skilled, and they are also involved in the husbandry care of a wide variety of animals used in research and teaching programs.

Work involves the handling of samples, and performance of routine laboratory examinations, according to Standard Operating Protocols. These require a considerable degree of accuracy and manual dexterity, and record-keeping, as well as the maintenance and care of laboratory specimens and materials.

ACRONYMS AND ABBREVIATIONS

ASLT	Animal Science Laboratory Technologist
CS	Core Skill
NOS	National Occupational Standard
NOSDT	National Occupational Standards Development Team
OK	Organizational Knowledge
PC	Performance Criteria
PS	Professional Skill
RK	Regulatory Knowledge
RPL	Recognition of Prior Learning
SOP	Standard Operating Procedures
TK	Technical Knowledge
ZABS	Zambia Bureau of Standards
ZAMRA	Zambia Medicines Regulatory Authority
ZAQA	Zambia Qualifications Authority
ZEMA	Zambia Environmental Management Agency
ZQF	Zambia Qualifications Framework
AIZ	Agricultural Institution of Zambia
VCZ	Veterinary Council of Zambia

GLOSSARY OF TERMS

For the purposes of this NOS, the following terms and definitions shall apply:

Core Skills/Generic Skills: are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.

Function: is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.

Job Title: defines a unique set of functions that together form a unique employment opportunity in an organisation.

Knowledge and Understanding: are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

National Occupational Standards (NOS): are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. They are precise descriptions of what an individual is expected to be able to do in his/her work role.

National Occupational Standards (NOS) Code: is a unique reference code that identifies a NOS.

National Occupational Standards Development Team (NOSDT): means an established group of national stakeholders/experts responsible for the development of National Occupational Standards within a specific economic sector or occupation.

Occupation: is a set of job roles, which perform similar/related set of functions in an industry.

Organisational Context: includes the way the organisation is structured and how it operates, including the extent of operative knowledge that managers have in their relevant areas of responsibility.

Performance Criteria: are statements that together specify the standard of performance required when carrying out a task.

Scope: is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.

Sector: is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

Sub Sector: is derived from a further breakdown based on the characteristics and interests of its components.

Technical Knowledge: is the specific knowledge needed to accomplish specific designated responsibilities.

Unit Title: gives a clear overall statement about what the incumbent should be able to do.

1. OVERVIEW

This overview highlights the key factors applicable to the Animal Science Laboratory Technologist, including the job description, job purpose, and level of education and experience needed.

NOS Code	NOS.ASLT.01
Occupation	Animal Science Laboratory Technologist
Job Title	Animal Science Laboratory Technologist (ASLT)
Job Description	The ASLT is responsible for receiving samples at the laboratory, preparing them for analysis, preparing the work area, managing biosecurity and conducting laboratory tests and examinations. They also oversee and take care of laboratory animals, maintain biosecurity at the laboratory and in the animal cages. In addition, they are responsible for sterilization and maintenance of laboratory equipment, and demonstration of techniques to students.
Job Purpose	To perform routine laboratory examinations, and to provide husbandry care for a wide variety of animals used in research and teaching programs.
ZQF Level	6
Sector	Agriculture
Sub sector	Livestock
Other Economic Sector(s) in which the Occupation is Practiced	Health (medical or pharmaceutical laboratory), Education (research or teaching laboratory), Manufacturing (Feed Analysis laboratory),
Other Similar Jobs that can be performed by a Animal Science Laboratory Technologist	Animal feed manufacturing laboratory technologist, veterinary laboratory technologist, practical laboratory instructors, medical laboratory technologist.
Minimum Educational Job Entry Qualification(s)	Diploma in Laboratory Technologist/or Veterinary Laboratory Technologist.
Practicing License Requirements (if any)	VCZ and/or AIZ (those who transition to the medical sector will need to register with HPCZ)
Training/RPL	Grade 12, with biology
Minimum Job Entry Age	20 years
Prior Experience	Not applicable
Performance Criteria	As described in the Units under Section 4

2. SCOPE

This National Occupational Standard specifies the fundamental knowledge and understanding, skills and competencies that an Animal Science Laboratory Technologist must possess to be successful in his/her job role. It is applicable to Animal Science Laboratory Technologists working in animal science laboratories, either in the private or public sector, or in academia.

3. PERSONAL ATTRIBUTES (VALUES, ETHICS AND ATTITUDES)

This job requires an individual to possess:

- Problem-solving skills
- Ability to think analytically and critically
- Mathematics and Science skills
- Integrity and Honesty
- Interpersonal skills
- Commercial Awareness
- Ethical and welfare issue awareness
- Attention to detail
- Ability to communicate effectively and clearly
- Self-motivated and a team worker
- Ability to plan and prioritize
- Quality consciousness
- Occupational health and safety oriented
- Responsible attitude, and an understanding of the need for confidentiality
- An interest in laboratory animals, and a willingness to care for them with a high level of welfare.

4. UNITS AND ELEMENTS

This National Occupational Standard is divided into five (05) Units representing the tasks that a job holder should undertake in his/her day to day work. Each unit is further broken down into elements depicting the number of activities to be carried out for the successful execution of a particular task.

UNIT 1 [This unit is about health, safety and environment].

Unit No.	01
Unit Title	Health, Safety and Environmental Management
Description	This unit is about maintaining safety, health and environmental protection for staff, the laboratory animals and the laboratory.
Scope	This unit covers the following: <ul style="list-style-type: none"> • Health & safety regulations and requirements • Environmental protection regulations and standard operating procedures.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Health & safety regulations and requirements	To be competent, the individual must be able to: PC1. Read, interpret and implement national and organizational safety and health policies and regulations. PC 2. Assess risks and possible safety hazards of all aspects of operations
Environmental protection regulations and standard operating procedures	To be competent, the individual must be able to: PC3. Read, interpret and implement the environmental policies for the organisation PC4. Read, interpret and implement environmental standard operating procedures and policies of the organisation PC5. Read, interpret and implement national and global environmental regulations.
Knowledge and Understanding (K)	
Organisational Context (Knowledge of the company/ organisation and its processes)	The individual on the job must demonstrate knowledge and understanding of: OK1. Company Quality, health and safety policies OK2. Company environmental policies OK3. Company regulations and global best practices OK4. Emergency response and reporting procedures
Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Safety and health risk assessment TK2. Environmental Risk assessment TK3. How to use Laboratory safety equipment (fire extinguishers, fire blankets, safety shower, eye wash and first aid kit) TK4. How to use laboratory PPE (gloves, shoes, safety eye

	wear, lab coats and aprons) TK5. How to interpret the hazard category colour codes on chemical labels
Regulatory context (Knowledge of Rules and Regulations)	The individual on the job must demonstrate knowledge and understanding of : RK1. Government regulatory agency requirements for health & safety (ZEMA, ZABS) RK2. Being certified as a laboratory Animal Technologist by AIZ and/or VCZ.
Skills (S) – these skills apply to all units	
Core Skills/ Generic Skills	Writing Skills
	The individual on the job must be able to: CS1. Write in English and give simple concise instructions. CS2. Keep current, accurate, and complete records.
	Reading Skills
	The individual on the job must be able to: CS3. Read and interpret internal/external documents. CS4. Read and understand manuals, health and safety instructions, memos, other company documents. CS5. Ability to read from different sources- books, screens in machines and signage. CS6. Understand the various colour codes, nomenclature and acronyms related to the profession. CS7. Observe and analyse the results of research experience.
	Oral Communication (Listening and Speaking skills)
	The individual on the job must be able to : CS8. Express statements or information clearly so that others can hear and understand. CS9. Participate in and understand the main points of discussions. CS10. Respond appropriately to any queries.
Professional Skills	Decision Making
	The individual on the job must be able to: PS1. Follow organizations rule-based decision-making process. PS2. Take decision with systematic course of actions and/or response.
	Plan and Organise
	The individual on the job must be able to: PS3. Plan and organise work to meet deadlines.

	<p>PS4. Work constructively and collaboratively with others. PS5. Ability to prepare and present lectures and training sessions.</p>
	<p>Customer Centricity</p>
	<p>The individual on the job must be able to:</p> <p>PS6. Follow a code of conduct. PS7. Manage relationships with customers with intent on satisfying the organisation's requirements for service delivery. PS8. Work with many professionals, paraprofessionals, caretakers, and students.</p>
	<p>Problem Solving and Decision Making</p>
	<p>The individual on the job must be able to:</p> <p>PS9. Recognize problems and search for solutions. PS10. Choose best methods to complete assigned tasks. PS11. Approach relevant authority when required. PS12. Judiciously use common sense in day-to-day activities</p>
	<p>Analytical Thinking</p>
	<p>The individual on the job must be able to:</p> <p>PS13. Apply domain knowledge, observations and data to select course of action to perform tasks PS14. Observe and analyse the results of research experience.</p>
	<p>Critical Thinking</p>
<p>The individual on the job must be able to:</p> <p>PS15. Critically evaluate information obtained from customers, supervisor, co-workers and students to perform day-to-day activities. PS16. Ask relevant questions for better understanding.</p>	

UNIT 2 [This unit is about Collecting, Transporting and Receiving Laboratory Samples].

Unit No.	02
Unit Title	Collecting, Transporting and Receiving Laboratory Samples
Description	This unit is about how to safely collect, transport, and receive laboratory samples
Scope	<p>This unit covers the following:</p> <ul style="list-style-type: none"> • Collection of samples, according to instructions, and SOPs • Packaging samples, in a bio-secure manner for transport. • Receiving of samples at the laboratory
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Collection of samples, according to instructions, and SOPs.	<p>To be competent, the individual on the Job must be able to:</p> <p>PC1. Collect the right samples of either tissues, blood, urine, faeces or other matter.</p> <p>PC2. Collect the samples utilising the recommended collection vessels, and medium for that particular sample.</p>
Packaging samples for transport	<p>To be competent, the individual on the Job must be able to:</p> <p>PC3. Securely package the samples.</p> <p>PC4. Use absorbent materials to surround the samples, in case of breakages.</p> <p>PC5. Wrap the samples with waterproof material.</p> <p>PC6. Package the samples inside a receptacle of the correct temperature, and protected from increment weather.</p> <p>PC7. Label the package correctly, with all necessary detail, as well as “biohazardous stickers/labelling” where necessary.</p>
Receiving of samples at the laboratory	<p>To be competent, the individual on the job must be able to:</p> <p>PC8. Receive samples at the laboratory, and enter them into the receiving records.</p> <p>PC9. Unpack the samples and store them according to specifications, until due for processing.</p>
Knowledge and Understanding (K)	

<p>Organisation-al Context (Knowledge of the company/ organisation and its processes)</p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> OK1. Company Quality, health and safety policies for the collection, transport and receiving of samples. OK2. Company environmental and waste management policies, for the collection, transport and receiving of samples. OK3. Company regulations and global best practices for the collection, transport and receiving of samples. OK4. Laboratory Standard Operating Procedures, and Biosecurity procedures for the collection, transport and receiving of samples.
<p>Technical Knowledge</p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> TK1. Collection of different types of samples from live animals, carcasses or from environmental surroundings. TK2. Choice of samples to collect in order to test for different diseases. TK3. Types of containers to use to collect and store each type of sample. TK4. Knowledge of the correct type of packaging and how to use it. TK5. Knowledge of the temperature, pH and other conditions under which each type of samples should be transported and stored. TK6. Potentially bio hazardous samples, and precautions to take around the same.
<p>Regulatory context (Knowledge of Rules and Regulations)</p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> RK1. Government regulatory agency requirements for health & safety with respect to collection, transport and handling of biological samples.
<p>Core Skills/ Generic Skills</p>	<p>Writing Skills</p> <p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> CS1. Write in English and give simple concise instructions. CS2. Keep current, accurate, and complete records.
	<p>Reading Skills</p> <p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> CS3. Read and interpret internal/external documents. CS4. Read and understand manuals, health and safety instructions, memos, other company documents. CS5. Ability to read from different sources- books, screens in machines and signage. CS6. Understand the various colour codes, nomenclature and acronyms related to the profession. CS7. Observe and analyse the results of research

	<p>experience.</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The individual on the job must be able to :</p> <p>CS8. Express statements or information clearly so that others can hear and understand.</p> <p>CS9. Participate in and understand the main points of discussions.</p> <p>CS10. Respond appropriately to any queries.</p>
<p>Professional Skills</p>	<p>Decision Making</p> <p>The individual on the job must be able to:</p> <p>PS1. Follow organizations rule-based decision-making process.</p> <p>PS2. Take decision with systematic course of actions and/or response.</p>
	<p>Plan and Organise</p> <p>The individual on the job must be able to:</p> <p>PS3. Plan and organise work to meet deadlines.</p> <p>PS4. Work constructively and collaboratively with others.</p> <p>PS5. Prepare and present lectures and training sessions.</p>
	<p>Customer Centricity</p> <p>The individual on the job must be able to:</p> <p>PS6. Follow a code of conduct.</p> <p>PS7. Manage relationships with customers with intent on satisfying the organisation’s requirements for service delivery.</p> <p>PS8. Work with many professionals, paraprofessionals, caretakers, and students.</p>
	<p>Problem Solving and Decision Making</p> <p>The individual on the job must be able to:</p> <p>PS9 Recognize problems and search for solutions.</p> <p>PS10. Choose best methods to complete assigned tasks.</p> <p>PS11. Approach relevant authority when required.</p> <p>PS12. Judiciously use common sense in day-to-day activities</p>
	<p>Analytical Thinking</p> <p>The individual on the job must be able to:</p> <p>PS13. Apply domain knowledge, observations and data to select course of action to perform tasks</p> <p>PS14. Observe and analyse the results of research experience.</p>
	<p>Critical Thinking</p> <p>The individual on the job must be able to:</p> <p>PS15. Critically evaluate information obtained from customers, supervisor, co-workers and students to perform day-to-day activities.</p> <p>PS16. Ask relevant questions for better understanding.</p>

UNIT 3 [This unit is about handling, processing and testing of laboratory samples].

Unit No.	03
Unit Title	Handling, Processing and Testing of Laboratory Samples
Description	This unit is about handling, processing and testing of laboratory samples.
Scope	This unit covers the following: <ul style="list-style-type: none"> • Opening of samples, and preparing for testing • Carrying out laboratory tests • Recording the result of the testing, and communicating the result of the testing to the supervisor/client.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Opening of samples, and preparing for testing	To be competent, the individual on the job must be able to: PC1. Safely open and process the samples, ready for testing.
Carrying out laboratory tests	To be competent, the individual on the job must be able to: PC2. Carry out the necessary laboratory tests, according to the Standard Operating Procedure. PC3. Carry out the following examinations, as required: <ul style="list-style-type: none"> • blood smear analysis, • blood sample analysis, • full blood count, • serum chemistry testing, • serology, • impression smear analysis of organs, • brain smear analysis, • conducting of bacterial cultures, • faecal sample analysis, • urinalysis, • feed analysis, • parasitology.
Recording the result of the testing, and communicating the result of the testing to the supervisor/client	To be competent, the individual on the job must be able to: PC4. Record the result of all laboratory tests, according to Standard Operating Procedures. PC5. Communicate the results to supervisors and/or clients as required.
Knowledge and Understanding (K)	
A. Organisation-al Context (Knowledge of the company/ organisation and its processes)	The individual on the job must demonstrate knowledge and understanding of: <ul style="list-style-type: none"> OK1. Company Quality, health and safety policies with regard to laboratory operations. OK2. Company environmental policies with regard to laboratory operations. OK3. Company regulations and global best practices with regard to laboratory operations.

<p>B. Technical Knowledge</p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> TK1. Operating a haematocrit machine. TK2. Operating a centrifugal machine TK3. Operating a microscope. TK4. Utilisation of the biohazard cupboard. TK5. Using a Bunsen burner TK6. Using and maintaining specialised equipment according to manufacturer's recommendations. TK7. Using urinalysis strip tests. TK8. Preparing different types of smears for analysis. TK9. Preservation of samples.
<p>C. Regulatory context (Knowledge of Rules and Regulations)</p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> RK1. Government regulatory agency requirements for health & safety with regard to laboratory operations. RK2. The importance of certification as an Animal Science Laboratory Technologist by AIZ and /or VCZ.
<p>A. Core Skills/ Generic Skills</p>	<p>Writing Skills</p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> CS1. Write in English and give simple concise instructions. CS2. Keep current, accurate, and complete records.
	<p>Reading Skills</p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> CS3. Read and interpret internal/external documents. CS4. Read and understand manuals, health and safety instructions, memos, other company documents. CS5. Read from different sources- books, screens in machines and signage. CS6. Understand the various colour codes, nomenclature and acronyms related to the profession. CS7. Observe and analyse the results of research experience.
<p>B. Professional Skills</p>	<p>Oral Communication (Listening and Speaking skills)</p>
	<p>The individual on the job must be able to :</p> <ul style="list-style-type: none"> CS8. Express statements or information clearly so that others can hear and understand. CS9. Participate in and understand the main points of discussions. CS10. Respond appropriately to any queries.
	<p>Decision Making</p>
<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> PS1. Follow organizations rule-based decision-making process. PS2. Take decision with systematic course of actions and/or response. 	
<p>Plan and Organise</p>	

	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none">PS3. Plan and organise work to meet deadlines.PS4. Work constructively and collaboratively with others.PS5. Prepare and present lectures and training sessions.
	<p>Customer Centricity</p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none">PS6. Follow a code of conduct.PS7. Manage relationships with customers with intent on satisfying the organisation's requirements for service delivery.PS8. Work with many professionals, paraprofessionals, caretakers, and students.
	<p>Problem Solving and Decision Making</p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none">PS9. Recognize problems and search for solutions.PS10. Choose best methods to complete assigned tasks.PS11. Approach relevant authority when required.PS12. Judiciously use common sense in day-to-day activities
	<p>Analytical Thinking</p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none">PS13. Apply domain knowledge, observations and data to select course of action to perform tasksPS14. Observe and analyse the results of research experience.
<p>Critical Thinking</p>	
<p>The individual on the job must be able to:</p> <ul style="list-style-type: none">PS15. Critically evaluate information obtained from customers, supervisor, co-workers and students to perform day-to-day activities.PS16. Ask relevant questions for better understanding.	

UNIT 4 [This unit is about handling and care of different types of the laboratory animals].

Unit No.	04
Unit Title	Handling and Care of different types of the laboratory animals
Description	This unit is about handling and caring for different types of the laboratory animals
Scope	This unit covers the following: <ul style="list-style-type: none"> Identifying and handling different types of the laboratory animals. Feed and husbandry care for laboratory animals, and identifying anomalies for reporting.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Identifying and handling different types the laboratory animals	To be competent, the individual must be able to: PC1. Identify and handle different types of laboratory animals. PC2. Draw and label a sample cage used in the animal facility. PC3. Make cages for various types of laboratory animals PC4. Prepare a checklist for monitoring animals. PC5. Demonstrate how to interact with the animals in a non-threatening manner. PC6. Demonstrate the methods of handling of laboratory animals safely
Feed and Husbandry Care for Laboratory Animals, and identifying anomalies for reporting	To be competent, the individual must be able to: PC7. Feed the animals according to required schedules. PC8. Prepare a sample diet plan for a specific type of laboratory animal. PC9. Explain Food habits and ways of feed preparation of the different types of laboratory animals. PC10. Record the details of the feed given to a sample group of animals PC11. Take care of all husbandry needs of the animals, according to industry recommended standards. PC12. Monitor for anomalies and abnormal behaviour, and report to the supervisor as required.
Knowledge and Understanding (K)	
A. Organisational Context (Knowledge of the company/ organisation and its processes)	The individual on the job must demonstrate knowledge and understanding of: OK1. Company Quality, health and safety policies with regard to animal handling. OK2. Company environmental policies with regard to animal handling. OK3. Company regulations and global best practices with regard to animal handling.
B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of:

	<p>TK1. Handling facilities for laboratory animals. TK2. Care, breeding, and handling of a wide variety of animals. TK3. The biology and physical characteristics of a wide variety of animals used in research and teaching.</p>
C. Regulatory context (Knowledge of Rules and Regulations)	<p>The individual on the job must demonstrate knowledge and understanding of: RK1. Government regulatory agency requirements for health & safety with regard to handling of animals. RK2. Welfare requirements for research animals.</p>
A. Core Skills/ Generic Skills	Writing Skills
	<p>The individual on the job must be able to: CS1. Write in English and give simple concise instructions. CS2. Keep current, accurate, and complete records.</p>
	Reading Skills
	<p>The individual on the job must be able to: CS3. Read and interpret internal/external documents. CS4. Read and understand manuals, health and safety instructions, memos, other company documents. CS5. Read from different sources- books, screens in machines and signage. CS6. Understand the various colour codes, nomenclature and acronyms related to the profession. CS7. Observe and analyse the results of research experience.</p>
	Oral Communication (Listening and Speaking skills)
	<p>The individual on the job must be able to : CS8. Express statements or information clearly so that others can hear and understand. CS9. Participate in and understand the main points of discussions. CS10. Respond appropriately to any queries.</p>
B. Professional Skills	Decision Making
	<p>The individual on the job must be able to: PS1. Follow organizations rule-based decision-making process. PS2. Take decision with systematic course of actions and/or response.</p>
	Plan and Organise
	<p>The individual on the job must be able to: PS3. Plan and organise work to meet deadlines. PS4. Work constructively and collaboratively with others. PS5. Prepare and present lectures and training sessions.</p>
	Customer Centricity
	<p>The individual on the job must be able to: PS6. Follow a code of conduct.</p>

	<p>PS7. Manage relationships with customers with intent on satisfying the organisation's requirements for service delivery.</p> <p>PS8. Work with many professionals, paraprofessionals, caretakers, and students.</p>
	<p>Problem Solving and Decision Making</p> <p>The individual on the job must be able to:</p> <p>PS9 Recognize problems and search for solutions.</p> <p>PS10. Choose best methods to complete assigned tasks.</p> <p>PS11. Approach relevant authority when required.</p> <p>PS12. Judiciously use common sense in day-to-day activities</p>
	<p>Analytical Thinking</p>
	<p>The individual on the job must be able to:</p> <p>PS13. Apply domain knowledge, observations and data to select course of action to perform tasks</p> <p>PS14. Observe and analyse the results of research experience.</p>
	<p>Critical Thinking</p> <p>The individual on the job must be able to:</p> <p>PS15. Critically evaluate information obtained from customers, supervisor, co-workers and students to perform day-to-day activities.</p> <p>PS16. Ask relevant questions for better understanding.</p>

UNIT 5 [This unit is about Biosecurity and Waste Management]

Unit No.	05
Unit Title	Biosecurity and Waste Management
Description	This unit is about Biosecurity and Waste Management
Scope	<p>This unit covers the following:</p> <ul style="list-style-type: none"> • Determination of the biosafety risk of samples • Handling of potentially hazardous materials. • Cleaning and disinfection of laboratory equipment and infrastructure. • Disposal of different types of waste materials.
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)
Determination of the biosafety risk of samples	<p>To be competent, the individual must be able to:</p> <p>PC1. Analyse the labelling of a batch of samples to determine the potential risk.</p>

Handling of biohazardous materials	To be competent, the individual on the job must be able to: PC2. Correctly unpack potentially biohazardous materials. PC3. Correctly work with potentially biohazardous materials. PC4. Use appropriate PPE when working with biohazardous materials.
Cleaning and disinfection of laboratory equipment and infrastructure	To be competent, the individual must be able to: PC5. Clean and disinfect laboratory equipment and surfaces according to standard operating procedures.
Disposal of different types of waste materials	To be competent, the individual must be able to: PC6. Safely dispose of all different types of waste materials in accordance with national regulations and standard operating procedures.
Core Skills/ Generic Skills	Writing Skills
	The individual on the job must be able to: CS1. Write in English and give simple concise instructions. CS2. Keep current, accurate, and complete records.
	Reading Skills
	The individual on the job must be able to: CS3. Read and interpret internal/external documents. CS4. Read and understand manuals, health and safety instructions, memos, other company documents. CS5. Read from different sources- books, screens in machines and signage. CS6. Understand the various colour codes, nomenclature and acronyms related to the profession. CS7. Observe and analyse the results of research experience.
	Oral Communication (Listening and Speaking skills)
The individual on the job must be able to : CS8. Express statements or information clearly so that others can hear and understand. CS9. Participate in and understand the main points of discussions. CS10. Respond appropriately to any queries.	
Professional Skills	Decision Making
	The individual on the job must be able to: PS1. Follow organizations rule-based decision-making process. PS2. Take decision with systematic course of actions and/or response.
	Plan and Organise
The individual on the job must be able to: PS3. Plan and organise work to meet deadlines.	

	<p>PS4. Work constructively and collaboratively with others. PS5. Ability to prepare and present lectures and training sessions.</p>
	<p>Customer Centricity</p>
	<p>The individual on the job must be able to: PS6. Follow a code of conduct. PS7. Manage relationships with customers with intent on satisfying the organisation’s requirements for service delivery. PS8. Work with many professionals, paraprofessionals, caretakers, and students.</p>
	<p>Problem Solving and Decision Making</p>
	<p>The individual on the job must be able to: PS9 Recognize problems and search for solutions. PS10. Choose best methods to complete assigned tasks. PS11. Approach relevant authority when required. PS12. Judiciously use common sense in day-to-day activities</p>
	<p>Analytical Thinking</p>
	<p>The individual on the job must be able to: PS13. Apply domain knowledge, observations and data to select course of action to perform tasks PS14. Observe and analyse the results of research experience.</p>
	<p>Critical Thinking</p>
<p>The individual on the job must be able to: PS15. Critically evaluate information obtained from customers, supervisor, co-workers and students to perform day-to-day activities. PS16. Ask relevant questions for better understanding.</p>	

5. EQUIPMENT, TOOLS AND CONSUMABLE MATERIALS

These include, but not limited to; computer, printer and relevant software programs, Personal protective equipment (PPE) such as gloves, safety boots, safety eye wear, lab coats, aprons, animal housing and equipment such as cages, drinkers, feeders, animal anatomy and physiology models such as animal cell, pig model, chicken model, cow model (for training purposes), magnifying equipment such as magnifying glass and various types of microscopes, tissue dissecting tools, laboratory apparatus such as test tubes, beakers, tripod stands, conical flasks, pipettes, first aid kit, and other safety items such as fire extinguishers, fire blankets, safety shower, and eye wash.

6. DILEMMAS/CHALLENGES AND COMPLEXITIES FOR A JOB HOLDER

Dilemmas associated with the job of an Animal Science Laboratory Technologist include long working hours, exposure to chemical (preservation fluids, mediums and staining fluids), physical (sharp implements/tools, glass, live animals, dead animals, handling facilities) and biological hazards (zoonotic diseases, noxious gases, Bunsen burners), time pressure to complete tasks, working in extreme weather such as hot and cold conditions, working in noisy, wet and dusty environments, etc.

6.1 Alternative Choices (Solutions) to Dilemmas and Complexities

Solutions to dilemmas include carrying out risk assessment and implementing appropriate control measures, ensuring good time management and planning, participating in workplace safety sensitization and awareness (including strict biosecurity, and health/safety procedures), supporting capacity building through training, managing work stress, adhering to company's safety and standard operating procedures at all times, paying attention to detail, consulting extensively within and outside one's department/team on safety and other issues.

7. WORKING CONDITIONS/ENVIRONMENT

Working conditions include working in cold, hot and wet conditions, working at heights, stand/walk for long hours, working in laboratory environment, working in shifts, areas that are noisy and dusty, areas with limited lighting and ventilation. Working in confined spaces, working in potentially explosive environment.

8. PARTIES INVOLVED/INTERACTING WITH THE JOB HOLDER OR TRAINEE

8.1 Internal/Within the Organization

Parties involved/interacting with the job holder who are internal to the organization include supervisors, subordinates, and other employees.

8.2 External/Outside the Organization

Parties involved/interacting with the job holder who are external include customers/clients, government regulators, trainers, suppliers of equipment/tools/consumables, occupational health and safety associations, and Academia.

9. PHYSICAL DEMANDS ON THE BODY

- Physique to sustain strenuous conditions;
- Be able to walk and stand for long periods of time;
- Bend, stretch, twist, or reach out;
- Be able to lift relatively heavy materials, tools and equipment;
- Be able to use fingers, hands and feet with ease to complete the assigned task (dexterity).

ANNEX A

Criteria for Assessments based on this NOS

A.1 Guidelines for Assessment

A.1.1 Criteria for assessment for curricula and learning programmes based on this NOS will be created by curricula and programmes developers. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. Curricula and programmes developers will also lay down proportion of marks for theory and practical skills for each performance criteria, giving more weight to practical skills.

There shall be allocated the 'Total Mark', which will be the sum of all marks in each Unit, distributed across the number of PCs in that particular Unit. The 'out of' mark will be the mark allocated to each PC, which will be shared between theory and skills practical assessments.

A.1.2 Awarding/assessment bodies or institutions and other users of the NOS will create unique question papers for the theory part and evaluations for skill practical part for their respective candidates.

ANNEX B NOS Version Control

This Annex gives details necessary for the tracking of the NOS versions based on the number of revisions.

NOS Code	NOS.ASLT.01		
ZQF Level	6	Version Number	01
Sector	Agriculture	Date of Approval	19 th May 2022
Sub Sector	Livestock	Date of Last Review	N/A
Occupation	Animal Science Laboratory Technician	Date of Next Review	May 2027

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