APPLY KNOWLEDGE OF ECOLOGY AND ENVIRONMENTAL SCIENCE

UNIT CODE: 0521 541 26A

TVET CDACC UNIT CODE: HE/OS/AHP/CC/05/6/MA

UNIT DESCRIPTION:

This unit specifies the competencies required by an animal health technologist to apply knowledge of ecology. It involves applying knowledge of community in ecology, ecosystem in animal health, energy flow in an ecosystem, nutrient cycling in an ecosystem, plant ecology in an ecosystem, principles of ecosystem in the environment, knowledge of environmental health and management, and knowledge of sustainable environmental management

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes, which make up workplace function.	**PERFORMANCE CRITERIA** These assessable statements specify the required level of performance for each element. ***Bold and italicized terms are elaborated in the range.***
1. Apply knowledge of community in ecology	1.1 **Association** between organism is identified as per work procedure 1.2 Dry land plants adaptation is identified as per work requirement 1.3 Animal adaptation to dryland conditions is identified as per work requirement
2. Apply knowledge of ecosystem in animal health	2.1 Ecosystem knowledge is applied as per work requirement 2.2 Biotic knowledge is applied as per work requirement 2.3 Abiotic knowledge is applied as per work requirement
3. Apply knowledge of energy flow in an ecosystem	3.1 Energy flow terminologies are applied as per work requirement 3.2 Ecological pyramids knowledge in an ecosystem is applied as per work requirement 3.3 Energy flow knowledge is applied as per work requirement 3.4 Ecological efficiencies of transfer of energies in an

	ecosystem is applied as per work requirement 3.5 Biological production in energy flow is applied as per work procedure
4. Apply knowledge of nutrient cycling in an ecosystem	4.1 Water cycle in ecosystem is determined and applied as per workplace procedure 4.2 Nitrogen cycle knowledge in ecosystem is applied as per work requirement 4.3 Carbon and Phosphorus cycle knowledge is applied as per work requirement
5. Apply knowledge of plant ecology in an ecosystem	5.1Forms of plant growth are identified and applied as per work procedure 5.2 Plant communities are determined and classified as per work procedure 5.3 Stages of retrogression are identified and applied as per work procedure 5.4 Ecoclimatic and agro-ecological zones are identified and applied in accordance to work place requirement
6. Apply principles ecosystem in the environment	6.1 Destructive activities of animals in an ecosystem are determined and managed as per work requirement 6.2 Beneficial activities of animals in an ecosystem are determined and applied as per work requirement 6.3 Effects of man activities in an ecosystem are determined and managed as per workplace procedure.
7. Apply knowledge of environmental health and management	7.1 Terminologies in environmental health and management are determined and applied as per work policy 7.2 Environmental pollution is determined and managed as per NEMA guidelines 7.3 Biodegradable and non-biodegradable items used in farming are identified and applied as per work requirement
8. Apply knowledge of	8.1 Causes of climate change are managed as per work

sustainable environmental management	requirement 8.2 Effects of climate change are managed as per work requirement 8.3 Mitigation of climate change are applied as per work requirement

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Associations include	1.1. Parasitism 1.2. Mutualism 1.3. Symbiosis 1.4. Commensalism
2. Plant communities	2.1. Monocotyledons 2.2. Dicotyledons 2.3. Bryophytes 2.4. Pterydophytes
3. Agencies	3.1. Government agencies 3.2. Non-government organizations 3.3. Associations

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required skills

The individual needs to demonstrate the following skills:

- Numeracy skills
- Health & safety skills
- Interpersonal skills

Required knowledge

The individual needs to demonstrate knowledge of:

- anatomy and physiology
- Pharmacology
- Microbiology
- Parasitology

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1. Critical Aspects of Competency	1.1 Identified association between organism as per work procedure 1.2 Identified dryland plants adaptation as per work requirement 1.3 Identified animal adaptation to dryland conditions as per work requirement 1.4 Applied ecosystem knowledge as per work requirement 1.5 Applied biotic and abiotic knowledge as per work requirement 1.6 Applied energy flow terminologies as per work requirement 1.7 Applied ecological pyramids knowledge in an ecosystem as per work requirement 1.8 Applied energy flow knowledge as per work requirement 1.9 Applied ecological efficiencies of transfer of energies in an ecosystem as per work requirement 1.10 Applied biological production in energy flow as per work procedure 1.11 Determined and applied water cycle in ecosystem as per workplace procedure 1.12 Applied nitrogen cycle knowledge in ecosystem as per work requirement 1.13 Applied carbon and Phosphorus cycle knowledge as per work requirement 1.14 Identified and applied forms of plant growth as per work

	procedure 1.15 Determined and classified plant communities as per work procedure 1.16 Identified and applied stages of retrogression as per work procedure 1.17 Determined and managed destructive activities of animals in an ecosystem as per work requirement 1.18 Determined and applied beneficial activities of animals in an ecosystem as per work requirement 1.19 Determined and managed effects of man activities in an ecosystem as per workplace procedure. 1.20 Determined and applied terminologies in environmental health and management as per work policy 1.21 Determined and managed environmental pollution as per NEMA guidelines 1.22 Identified and applied biodegradable and non-biodegradable items used in farming as per work requirement 1.23 Managed causes of climate change as per work requirement 1.24 Managed effects of climate change as per work requirement 1.25 Applied mitigation of climate change as per work requirement
2. Resource Implications	The following resources must be provided: 2.1 Appropriately simulated environment where assessment can take place 2.2 Access to relevant work environment 2.3 Resources relevant to the proposed activities or tasks
3. Methods of Assessment	Competency may be assessed through Observation Oral questions Written test Portifolio of evidence

	Interview Third party report
4. Context of Assessment	Competency may be assessed in a: Workplace or simulated workplace.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended