BIOCHEMISTRY PRINCIPLES

UNIT CODE: 0512 551 10 A

TVET CDACC UNIT CODE: AGR/CU/AP/CC/04/6/MA

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply biochemistry principles

Duration of unit: 60 hours

UNIT DESCRIPTION

This unit specifies the competencies required by an animal production technologist level 6 to apply biochemistry principles. It involves measuring enzyme kinetics, analyzing carbohydrates, proteins, lipids, vitamins and minerals.

Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

S/No	Learning Outcomes	Duration (Hours)
1.	Measure Enzyme kinetics	10
2.	Analyze carbohydrates	15
3.	Analyze proteins	10
4.	Analyze lipids	10
5.	Analyze Minerals and vitamins	15
Total		**60**

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Measure Enzyme kinetics	1.1. Enzyme and substrate preparation 1.2. Enzyme assay 1.3. Measurement of enzyme reaction rate	● Written assessment ● Practical ● Projects ● Third party report ● Portfolio of evidence

		• Oral questions
2. Analyze carbohydrates	2.1. Identification of carbohydrates 2.2. Classification of carbohydrates based on chemical composition 2.2.1. Monosaccharide's 2.2.2. Disaccharides 2.2.3. Polysaccharides 2.2.4. Oligosaccharides 2.3. Classification of carbohydrates based on chemical structure 2.4. Functions of carbohydrates	• Written assessment • Practical • Projects • Third party report • Portfolio of evidence • Oral questions
3. Analyze proteins	3.1. Identification of proteins 3.2. Classification of proteins 3.3. Functions of proteins	• Written assessment • Practical • Projects • Third party report • Portfolio of evidence • Oral questions
4. Analyze lipids	4.1. Identification of lipids 4.1.1. Phospholipids 4.1.2. Triglycerides 4.1.3. Sphingolipids 4.1.4. Steroids 4.2. Classification of lipids 4.3. Functions of lipids	• Written assessment • Practical • Projects • Third party report • Portfolio of evidence • Oral questions
5. Analyze Minerals and vitamins	5.1. Identification of minerals and vitamins 5.2. Functions of minerals 5.2.1. Macro elements 5.2.2. Micro elements 5.3. Functions of vitamins 5.3.1. Water soluble vitamins	• Written assessment • Practical • Projects • Third party report • Portfolio of evidence • Oral questions

	5.3.2. Fat soluble vitamins	

Suggested methods of delivery

- Demonstration
- Practicals
- Discussions
- Direct instruction

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Charts	Flip Charts Rules and Regulations	5	1:5
2.	Markers	whiteboard markers and permanent markers	5	1:5
3.	Video clips Audio tapes	MP4, MP3	5	1:5
4.	Newspapers and Handouts	Daily	25	1:1
5.	Business Journals	Annual, Monthly, Daily	25	1:1
6.	Periodic table chart	Well labeled	5	1:5
B	**Learning Facilities & Infrastructure**			
7.	Lecture/Theory Room	(9* 8 sq. meters)	1	1:25

8.	Internet Connection	WI-FI, Dial-Up, Cable, Fixed-wireless,	1	1:25
9.	Chemistry laboratory	Well-equipped laboratory	1	1:25
C	**Consumable Materials**			
10.	Flashcards	Alphabet, Numbers, Math	25	1:1
11.	Stationery	Printing Papers, and Exercise Books Sizes A4, A3, A2 etc	5 reams	1:5
12.	Laboratory consumable materials	Carbohydrates Proteins Lipids, vitamins Hydrocarbons Acids and bases Gases	Sufficient	
D	**Tools And Equipment**			
13.	Computers/Laptops	Any model	1	1:25
14.	Projector	LED.LCD, Laser	5	1:5
15.	Whiteboard	Glass, melamine, porcelain	1	1:25
16.	Ph meter		5	1:5