



REPUBLIC OF KENYA

COMPETENCY-BASED MODULAR CURRICULUM

FOR
AGRICULTURE AND EXTENSION LEVEL 6
(CYCLE 3)

ISCED PROGRAMME CODE: 0811 554 A



TVET CDACC
P.O. BOX 15745-00100 NAIROBI

INORGANIC AND ORGANIC CHEMISTRY

UNIT CODE: 0811 551 18 A

TVET CDACC UNIT CODE: AGR/CU/EXT/CC/02/6/MA

UNIT DURATION: 120 HOURS

Relationship to Occupational Standards

This unit addresses the Unit of Competency: **Apply inorganic and organic chemistry**

Unit Description

This unit specifies the competencies required to apply inorganic and organic chemistry. It involves applying physical chemistry principles, inorganic and organic chemistry concepts.

Summary of Learning Outcomes

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

S/No	Learning Outcomes	Duration (Hours)
1.	Apply physical chemistry principles	40
2.	Apply inorganic chemistry concepts	40
3.	Apply organic chemistry concepts	40
Total		120

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcomes	Content	Suggested Assessment Methods
1. Apply physical chemistry principles	Theory 1.1 Acid and bases 1.1.1 Definition of terms 1.1.2 Characteristics of acid and bases	<ul style="list-style-type: none">Written testsThird party reportReflection papersProjects

	<p>1.1.3 classification of acids and bases</p> <p>1.1.3.1 Strong acids and bases</p> <p>1.1.3.2 Weak acids and bases</p> <p>1.1.4 Uses of acids and bases</p> <p>1.1.5 Preparation of acids and bases</p> <p>1.2 Salts</p> <p>1.2.1 Definition of terms</p> <p>1.2.2 Characteristics of Salts</p> <p>1.2.3 classification of Salts</p> <p>1.2.4 Uses of Salts</p> <p>1.2.5 Preparation of Salts</p> <p>1.3 Application of ionic and chemical equilibrium properties</p> <p>1.4 Application of Gases properties</p> <p>Practice</p> <p>1.5 Prepare acids and bases</p> <p>1.6 Prepare Salts</p>	<ul style="list-style-type: none"> Interviews/ Oral questions Workshop reports Individual/group assignments Case Studies Practicals
2. Apply inorganic chemistry concepts	<p>Theory</p> <p>2.1 Periodic table</p> <p>2.1.1 Definition of terms</p> <p>2.1.2 Elements of periodic table</p> <p>2.1.3 Atomic numbers</p> <p>2.1.4 Chemical bonds</p> <p>2.1.4.1 Ionic bonds</p> <p>2.1.4.2 Covalent bonds</p> <p>2.1.4.3 Metallic bonds</p> <p>2.1.4.4 Hydrogen bonds</p>	<ul style="list-style-type: none"> Written tests Reflection papers Projects Interviews/ Oral questions Workshop reports Individual/group assignments Practicals
3. Apply organic chemistry concepts	<p>Theory</p> <p>3.1 Organic compounds</p> <p>3.1.1 Definition of terms</p> <p>3.1.2 Classes of organic compounds</p> <p>3.1.2.1 Carbohydrates</p>	<ul style="list-style-type: none"> Written tests Third party report Reflection papers Projects Interviews/ Oral

	<p>3.1.2.2 Proteins</p> <p>3.1.2.3 Lipids</p> <p>3.1.2.4 Hydrocarbons</p> <p>3.2 Physical properties</p> <p>3.2.1 Colour</p> <p>3.2.2 Hardness</p> <p>3.2.3 Mass</p> <p>3.2.4 Solubility</p> <p>3.3 Chemical properties</p> <p>3.3.1 Ph</p> <p>3.3.2 Chemical stability</p> <p>3.3.3 Radioactivity</p> <p>3.3.4 Flammability</p> <p>3.3.5 Heat of combustion</p> <p>3.4 Purification of synthesized compounds</p> <p>3.4.1 Uses of purified compounds</p> <p>Practice</p> <p>3.5 Carry out purification of synthesized compounds</p>	<p>questions</p> <ul style="list-style-type: none"> • Workshop reports • Individual/group assignments • Case Studies • Practicals
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Suggested Methods of Instruction

- Role playing
- Group discussion
- Direct instruction

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			

1.	Journals		5 pcs	1:5
2.	writing materials		50	2:1
3.	Charts		5	1:5
4.	PowerPoint presentations	For trainer's use		
5.	Whiteboard		1	1:25
6.	Printers		1	1:25
B	Learning Facilities & infrastructure			
1.	Lecture/theory room		1	1:25
2.	Projector		1	1:25
3.	Assorted Flash Cards		25	
4.	Site		1	1:25
C	Consumable materials			
1.	Printing Papers	Ream	1	1:25
2.	Assorted color of whiteboard marker	For trainers use		
D	Tools and Equipment			
1.	Paper questionnaire		25	1:1
2	Paper checklist		25	1:1