



REPUBLIC OF KENYA

COMPETENCY BASED MODULAR CURRICULUM

FOR

AGRICULTURAL ENGINEERING

KNQF LEVEL 6

(CYCLE 3)

PROGRAMME ISCED CODE: 0716 554 A



TVET CDACC
P.O. BOX 15745-00100
NAIROBI

AGRICULTURAL SURVEY AND FARM PLANNING

UNIT CODE: 0716 551 18A

TVET CDACC UNIT CODE: ENG/CU/AGR/CR/01/6/MA

UNIT DURATION: 180 Hours

Relationship to Occupational Standards

This unit addresses the unit of competency: **Carry out agricultural survey and farm planning**

Unit Description

This unit specifies the competencies required by an Agricultural Engineering Technologist Level 6 to carry out agricultural survey and farm planning. It involves carrying out agricultural feasibility study, agricultural survey and farm planning and layout.

Summary of Learning Outcomes

S/No.	Learning Outcomes	Duration (Hours)
1.	Carry out agricultural feasibility study	40
2.	Carry out agricultural survey	100
3.	Carry out farm planning and layout	40
TOTAL		180

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Carry out agricultural feasibility study	<p>1.1 Factors to be considered in conducting feasibility survey</p> <p>1.1.1 Functionality</p> <p>1.1.2 Structure location</p> <p>1.1.3 Clients' requirements</p> <p>1.2 Planning for feasibility survey e.g.</p> <p>1.2.1 Tools and equipment for feasibility survey</p> <p>1.2.2 Types of feasibility surveys</p> <p>1.2.3 Procedures for feasibility survey</p>	<ul style="list-style-type: none">• Practical• Project• Portfolio of evidence• Third party report• Written tests• Oral questioning

Learning Outcome	Content	Suggested Assessment Methods
2. Carry out agricultural survey	<p>2.1 Types of chains e.g.</p> <p>2.1.1 Gunter's chain</p> <p>2.1.2 Metric chain</p> <p>2.1.3 Engineers chain</p> <p>2.1.4 Band chain</p> <p>2.1.5 Revenue chains</p> <p>2.2 Chain survey stations</p> <p>2.2.1 Main station</p> <p>2.2.2 Subsidiary stations</p> <p>2.2.3 Tie stations</p> <p>2.3 Procedures in chain survey</p> <p>2.3.1 Reconnaissance survey</p> <p>2.3.2 Marking stations</p> <p>2.3.3 Chaining</p> <p>2.3.4 Taking measurements</p> <p>2.3.5 Analysis</p> <p>2.3.6 Report writing</p> <p>2.4 Types of levels</p> <p>2.4.1 Dumpy</p> <p>2.4.2 Abney</p> <p>2.4.3 Wye</p> <p>2.4.4 Tilting</p> <p>2.4.5 Precision</p> <p>2.5 Levelling terms e.g.</p> <p>2.5.1 Datum</p> <p>2.5.2 Backsight</p> <p>2.5.3 Foresight</p> <p>2.5.4 Intermediate sight</p>	<ul style="list-style-type: none"> • Practical • Project • Portfolio of evidence • Third party report • Written tests • Oral questioning

Learning Outcome	Content	Suggested Assessment Methods
	<p>2.5.5 Height of instrument</p> <p>2.6 Methods of levelling</p> <p>2.6.1 Simple</p> <p>2.6.2 Profile</p> <p>2.6.3 Differential</p> <p>2.6.4 Reciprocal</p> <p>2.7 Relevant tools and equipment for levelling</p> <p>2.8 Construction materials and availability</p> <p>2.9 Levelling procedures</p> <p>2.10 Booking methods</p> <p>2.10.1 Height of collimation</p> <p>2.10.2 Rise and fall method</p> <p>2.11 Arithmetic checks</p> <p>2.12 Methods of land grading</p> <p>2.12.1 Profile</p> <p>2.12.2 Plane</p> <p>2.12.3 Plan inspection</p> <p>2.12.4 Contour adjustment</p> <p>2.13 Benefits of land grading</p> <p>2.14 Limitations of land grading</p>	
3. Carry out farm planning and layout	<p>3.1 Procedure of farm planning</p> <p>3.2 Types of farm layouts, eg</p> <p>3.2.1 Block or rectangular</p> <p>3.2.2 Contour</p> <p>3.2.3 Radial</p> <p>3.2.4 Strip or linear</p> <p>3.3 Methods of farm planning</p>	<ul style="list-style-type: none"> • Practical • Project • Portfolio of evidence • Third party report • Written tests

Learning Outcome	Content	Suggested Assessment Methods
	3.3.1 Agronomic 3.3.2 Physical 3.4 Special purpose	<ul style="list-style-type: none"> Oral questioning

Suggested Methods of Delivery

- Demonstration
- Projects
- Group discussion
- Direct instructions

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			
	Projector		1	1:25
	Scientific calculators		25	1:25
	Survey manual		1	1:25
	Computer with internet and		1	1:25
B	Learning Facilities & infrastructure			
	Classroom	40 m ²	1	1:25
C	Consumable materials			
	Stationery	Assorted	1 rim of printing papers 1 packet of pens	1:25

			1 packet of maker pens	
D	Tools and equipment			
	Dumpy levels		1	1:25
	Total station		1	1:25
	Reading staffs		3	1:8
	Sets of marking pin		3	1:8
	Engineer's chain		2	1:13
	Gunter's chain		2	1:13
	Measuring tapes		3	1:8
	Tripod stands		1	1:25
	Wheelbarrows		2	1:13
	Pangas		5	1:5
	Farm		0.5-acre	