

FARM IRRIGATION AND DRAINAGE SYSTEMS

ISCED UNIT CODE: 0811 451 06A

TVETCDACC UNIT CODE: AQ/CU/PN/CC/03/5/MA

Relationship to Occupational Standards

This unit addresses the unit of competency: carry out farm irrigation and drainage

Duration of Unit: 180 HOURS

UNIT DESCRIPTION

This unit specifies the competencies required by an Agripreneurship technologist level 6 to carry out farm irrigation and drainage. It involves designing farm irrigation and drainage systems, installing farm irrigation and drainage systems and maintaining farm irrigation and drainage systems.

Summary of learning outcomes

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

S/No	Learning Outcomes	Duration (Hours)
1.	Design farm irrigation and drainage systems	60
2.	Install farm irrigation and drainage systems	60
3.	Maintain farm irrigation and drainage systems	60
Total		180

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Design farm irrigation and drainage	1.1 Farm irrigation and drainage system work drawing 1.1.1 Surface 1.1.2 Sub surface 1.1.3 Sprinkler 1.1.4 Trickle	• Practical • Project • Third party report • Portfolio of

systems	1.1.5 Centre pivot 1.2 Farm irrigation and drainage system design approvals 1.3 system material costing - Material costing components - Material estimation process 1.4 preparing Farm irrigation and drainage system material schedule	evidence - Written tests - Oral questioning
2 Install farm irrigation and drainage systems	2.1 Personal protective equipment ✓ Types ✓ Uses 2.2 Farm irrigation and drainage system tools, equipment and uses 2.2.1 Drip kit 2.2.2 Pipes 2.2.3 Fittings 2.2.4 Water meter 2.2.5 Flow meters 2.2.6 Pumps 2.3 Installation of farm irrigation and drainage system - irrigation and drainage system installation procedure - irrigation and drainage system testing 2.4 Testing of farm irrigation and drainage system	- Practical - Project - Third party report - Portfolio of evidence - Written tests - Oral questioning
3 Maintain farm irrigation and drainage systems	3.1 personal protective equipment - Types - Use 3.2 Farm irrigation and drainage system maintenance schedule - Daily - Weekly - Monthly - Annually - seasonally 3.3 Assembling of Farm irrigation and drainage system tools and equipment - Drip kit - Pipes - Fittings	- Practical - Project - Third party report - Portfolio of evidence - Written tests - Oral questioning

	• Water meter • Flow meter • Pump	
	3.4 Farm irrigation and drainage system maintenance • -irrigation system maintenance practices • -drainage system maintenance practices	

Suggested methods of delivery

- Project
- Demonstration
- Practicals
- Discussions
- Direct instruction

Recommended resources for 25 trainees

S/No	Item/Category	Description/Specification	Quantity	Recommended Ratio (Item: Trainee)
A	Learning Materials			
	Text books & E- learning materials	Agricultural engineering	5	1:5
B	Learning Facilities & infrastructure			
	classroom		1	1:25
C	Consumable materials			
	notebooks	A4 SIZE	25	1:1
	Flip chart		1	1:25
D	Tools and Equipment			
	Projectors	EPSON 2788 LUMEN or any brand	1	1:25
	Computers	Any brand-5 th generation and above COi5	5	1:5
	internet	Reliable and fast		
	Ranging rods/pegs	Wooden 1ft	10	1:2
	Measuring tape	100m long	5	1:5
	Shovels		5	1:5
	Jembes	Wooden handle and sharp	5	1:5

	Mattock	Wooden handle and sharp	5	1:5
	Pangas	Sharp with good handle	1	1:5
	Water taps		5	1:5
	Gutters	pvc	5	1:5
	Rope/strings	100 m long manilla rope	2	1:10
	Pipes	Pvc pipes 100m	1	
	Emitters			
	Pump		2	
	Tanks	100l tank	1	1:25
	Nozzles		5	1:5
	Valves		5	1:5

MODULE VIII