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

WORKSHOP TECHNOLOGY PRACTICES

UNIT CODE: 0716 441 02A

TVET CDACC UNIT CODE: ENG/CU/AGR/CC/01/5/MA

UNIT DURATION:100 Hours

Relationship to Occupational Standards

This unit addresses the unit of competency: **Perform workshop technology practices**

Unit Description

This unit specifies the competencies required by an Agricultural Engineering Technologist Level 6 to perform workshop technology practices. It involves performing bench works, carrying out mechanical machining operations, fabricating farm tools and equipment, maintaining farm machinery and workshop tools and equipment.

Summary of Learning Outcomes

S/No	Learning Outcomes	Duration (Hours)
1.	Perform bench works	30
2.	Carry out mechanical machining operations	30
3.	Fabricate farm tools and equipment	30
4.	Maintain farm machinery, workshop tools and equipment	10
TOTAL		**100**

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Perform bench works	1.1 Metal workshop safety precautions and PPEs e.g. 1.1.1 Gloves 1.1.2 Helmet 1.1.3 Safety boots 1.1.4 Safety goggles 1.1.5 Overalls 1.1.6 Dust coat	• Practical • Project • Portfolio of evidence • Third party report • Written tests

	1.1.7 Ear muffs 1.2 Metal workshop hand tools e.g. 1.2.1 Cutting tools 1.2.2 Grinding tools 1.2.3 Drilling tools 1.2.4 Measuring tools 1.2.5 Boring 1.2.6 Holding tools 1.2.7 Striking tools 1.2.8 Marking tools 1.2.9 Threading tools 1.3 Use of metal workshop hand tools 1.4 Metal workshop hand operations e.g. 1.4.1 Cutting 1.4.2 Filing 1.4.3 Scrapping 1.4.4 Measuring 1.4.5 Drilling 1.4.6 Striking 1.4.7 Grinding 1.5 Maintenance of metal workshop hand tools	• Oral questioning
2. Carry out mechanical machining operations	2.1 Metal workshop safety requirements 2.2 Workshop machines e.g. 2.2.1 Bending machine 2.2.2 Welding machine 2.2.3 Lathe machine 2.2.4 Milling machine	• Practical • Project • Portfolio of evidence • Third party report • Written tests

	2.2.5 Drilling machine 2.2.6 Sheet metal holding machine 2.3 Metal workshop machine operations e.g. 2.3.1 Cutting 2.3.2 Knurling 2.3.3 Chamfering 2.3.4 Drilling 2.3.5 Boring 2.3.6 taper turning 2.3.7 Threading 2.4 Maintenance of metal workshop machines 2.5 Use of metal workshop machines	• Oral questioning
3. Fabricate farm tools and equipment	3.1 Metal workshop safety requirements 3.2 Hand tools used during fabrication 3.3 Fabrication of different types of farm tools and equipment	• Practical • Project • Portfolio of evidence • Third party report • Written tests • Oral questioning
4. Maintain farm machinery, workshop tools and equipment	4.1 Machines used during fabrication 4.2 Maintenance of tools and machines 4.3 Filing of workshop maintenance report	• Practical • Project • Portfolio of evidence • Third party report • Written tests

		• Oral questioning

Suggested Delivery Methods

- Demonstration by trainer
- Discussions
- Practical work by trainee(s)
- Exercises
- Industrials visits
- Internet.
- Simulation

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Goggles		5 pcs	1:5
2.	Safety shoes		5 pcs	1:5
3.	Overall		5 pcs	1:5
4.	Cap		5 pcs	1:5
5.	Ear Muffs			
6.	Gloves			
B	**Learning Facilities & infrastructure**			
2.	Lecture/theory room	40 m^2	1	1:25
3.	Tools and Equipment storage facility		1	1:25
4.	Workshop	40 m^2	1	1:25

C	**Consumable materials**			
	Mild steel plate			
	Sheet metal			
	Brass sheets			
	Zinc sheets			
	Aluminum sheets			
	Bright Drawn Mild Steel			
	Carbon steel			
	Brass rods			
	Aluminum rods			
	Abrasive materials			
	Grinding paste			
	Cotton wastes			
	Cleaning detergents			
D	**Tools and Equipment**			
	Welding			
	Drilling machines			
	Vices			
	Burnishing machine			
	Cutting tools			
	Combination square			
	Centre punch			
	Centre lathe			
	Scribers			
	Calipers			
	Dies and taps			
	Surface plate			
	V-blocks			
	Dial gauge			
	Die stock			

	Engineer's square			
	File card			
	Assorted Files			
	Clamps			
	Assorted hand tools			
	Hammers			
	Measuring tools			
	Drill bits			
	Assorted inspection tools and equipment			
	Inspection and measuring tools, GO and NOT GO gauges			
	Jigs and fixture			
	Pliers			
	Rotary disc abrasive grinder			
	Reamers			
	Saw			
	Screwdrivers			
	Spiral lowering			
	Tap wrench			
	Vacuum cleaners			
	V-block			
	Workbenches			
	Vacuum cleaners			
	Mops/ Brooms and buckets			
	Firefighting equipment			
	First Aid kit			