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

COMPUTER AIDED DRAWING AND DESIGN

UNIT CODE: 0716 541 19A

TVET CDACC UNIT CODE: ENG/CU/AGR/CC/03/6/MA

UNIT DURATION: 100 Hours

Relationship to Occupational Standards

This unit addresses the unit of competency: **Apply computer aided drawing**

Unit Description

This unit specifies the competencies required by an Agricultural Engineering Technologist Level 6 to apply computer aided drawing. It involves using and maintaining drawing equipment and materials, producing geometric drawings, pictorial drawings, orthographic drawings, producing assembly drawings and designing mechanical components

Summary of Learning Outcomes

S/No.	Learning Outcomes	Duration (Hours)
1.	Apply CAD packages in drawing	6
2.	Produce pictorial drawings	10
3.	Produce orthographic drawings	28
4.	Produce assembly drawings	28
5.	Design mechanical components	28
TOTAL		**100**

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply CAD packages in drawing	1.1 Introduction to CAD packages 1.2 Installation of CAD packages 1.3 Production of geometric drawings 1.4 Selection of CAD packages	• Practical • Project • Portfolio of evidence • Third party report • Written tests Oral questioning

	1.5 Application of CAD packages in production of engine parts, electrical and electronic circuits, irrigation systems and farm machineries and their components	
2. Produce pictorial drawings	2.1 Introduction to pictorial drawing 2.2 Types of pictorial forms 2.3 Production of pictorial CAD drawings	• Practical • Project • Portfolio of evidence • Third party report • Written tests Oral questioning
3. Produce orthographic drawings.	3.1 Symbols and abbreviations 3.1.1 First angle 3.1.2 Third angle 3.2 Drawing and interpretation of orthographic elevations 3.2.1 Front 3.2.2 End 3.2.3 Plan	• Practical • Project • Portfolio of evidence • Third party report • Written tests Oral questioning

	3.3 Production of orthographic drawings 3.4 Dimensioning of orthographic elevations	
4. Produce assembly drawings	4.1 Production of exploded orthographic views 4.2 Prepare exploded pictorial views 4.3 Standard of assembly of orthographic and pictorial views 4.4 Preparation of parts list from schematic drawing	1.1 Practical 1.2 Project 1.3 Portfolio of evidence 1.4 Third party report 1.5 Written tests Oral questioning
5. Design mechanical components	5.1 Mechanical components design conventions 5.2 Mechanical component simulation 5.3 production of optimized mechanical component	○ Practical ○ Project ○ Portfolio of evidence ○ Third party report ○ Written tests ○ Oral questioning

Suggested Delivery Methods

1. Projects
2. Demonstration by trainer
3. Practice by the trainee

4. Discussions

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
A	**Learning Materials**			
1.	Charts with diagrams		5 pcs	1:5
B	**Learning Facilities & infrastructure**			
1.	Autocad lab	40 m^2	1	1:25
C	**Consumable materials**			
1.	Stationery	Assorted	1 rim of printing papers 1 packet of pens 1packet of maker pens	1:25
D	**Tools and Equipment**			
1.	Scientific calculator		25 pcs	1:1
2.	Computer with internet and installed softwares		25 pcs	1:1
3.	Projector		1 pc	1:25