

TECHNICAL DRAWINGS 1

UNIT CODE: 0732441 15A

TVET CDACC UNIT CODE: ENG/CU/MDE/CC/09/5/MA

UNIT DURATION: 60 HOURS

Relationship to Occupational Standards

This unit addresses the unit of competency: Prepare technical drawings I.

UNIT DESCRIPTION

This unit covers competences required to prepare technical drawings. It involves preparing drawing equipment and materials, producing plane geometry drawings, managing basic operations in AutoCAD and developing 2D Drawings in AutoCAD.

Summary of Learning Outcomes

S/No.	Learning Outcome	Duration in hours.
1.	To prepare drawing equipment and materials	10
2.	To produce plane geometry drawings	10
3.	To manage basic operations in AutoCAD	15
4.	To develop 2D Drawings in AutoCAD	15
	TOTAL	60

Learning Outcomes, Content and Suggested Assessment Methods:

Learning Outcome	Content	Suggested Assessment Methods
1. Prepare drawing equipment and materials	1.1 Identification and care of drawing equipment 1.1.1. Drawing boards 1.1.2. T and set squares 1.1.3. Drawing set	<ul style="list-style-type: none">• Practical Assessment• Project• Third Party Report• Portfolio of Evidence

Learning Outcome	Content	Suggested Assessment Methods
	<p>1.2 Identification and care of drawing materials</p> <p>1.2.1. Drawing papers</p> <p>1.2.2. Pencils</p> <p>1.2.3. Erasers</p> <p>1.2.4. Masking tapes</p> <p>1.2.5. 2.5 Paper clips</p> <p>1.3 Reference to manufacturer's instructions and work place procedures on use and maintenance of drawing equipment and materials</p> <p>1.4 Reference to relevant environmental legislations</p> <p>1.5 Waste materials are disposed</p>	<ul style="list-style-type: none"> • Written Assessment • Oral Questioning
2. Produce plane geometry drawings	<p>2.1 Types of lines in drawings</p> <p>2.2 Freehand printing of letters</p> <p>2.3 Borderlines and title blocks</p> <p>2.4 Construction of different angles</p> <p>2.5 Measurement of different angles</p> <p>2.6 Bisection of different angles and lines</p> <p>2.7 Construction of geometric forms e.g. Circles, Triangles, Rectangles, Parallelogram, Polygons, loci</p> <p>2.8 Patterns development e.g cones, pyramids, prisms, cylinders</p> <p>2.9 Different types of Tangents</p> <p>2.9.1. Exterior tangents to a circle</p>	<ul style="list-style-type: none"> • Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

Learning Outcome	Content	Suggested Assessment Methods
	2.9.2. Interior tangents to a circle 2.10 □ Standard drawing conventions	
3. Manage basic operations in AutoCAD	3.1 Identification of Key features of CAD software 3.1.1. 2D drafting and drawing 3.1.2. 3D drafting and drawing 3.2 AutoCAD visual reference commands 3.2.1. Visual styles 3.2.2. Materials and textures 3.2.3. Writing 3.2.4. Rendering 3.2.5. View port 3.3 AutoCAD ribbon tools 3.4.1. Draw panel 3.4.2. Modify panel 3.4.3. Layer 3.4.4. Annotation 3.4 AutoCAD status bar tools 3.4.1. Snap 3.4.2. Grid 3.4.3. Ortho 3.4.4. Object snap 3.4.5. Polar tracking 3.4.6. Isometric drafting 3.5 AutoCAD navigation commands 3.5.1. AutoCAD drawing work	<ul style="list-style-type: none"> • Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

Learning Outcome	Content	Suggested Assessment Methods
	3.5.2. □ Saving of AutoCAD drawing files in proper format	
4. Develop 2D Drawings in AutoCAD	4.1 Setting up of Drawing interface. 4.2 Creating drawing Layouts 4.3 Creation of 2D drawings 4.4 Editing/modification of 2D drawings 4.5 Saving AutoCAD drawings 4.6 AutoCAD 2D drawing work	<ul style="list-style-type: none"> • Practical Assessment • Project • Third Party Report • Portfolio of Evidence • Written Assessment • Oral Questioning

Suggested Methods of Delivery

- Practical
- Projects
- Demonstrations
- Group discussions
- Interactive lectures
- Industrial attachment
- Viewing of related videos

Recommended Resources for 25 trainees

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

1.	Textbooks	K.Morling Geometric and Engineering drawing	5 pcs	1:5
2.	Drawing instruments	T-squares, set squares, drawing sets, Masking tapes	25	1:1
3.	Power point presentations	For trainer's use	1	1:25
B	Learning Facilities & infrastructure			
4.	Lecture/theory room	50m ²	1	1:25
5.	Computer Workshop	200m ² Computers installed with relevant CAD packages	1	1:25
6.	Drawing tables		25	1:1