



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

PWOTD301

BASIC TECHNICAL DRAWING APPLICATION

APPLY BASIC TECHNICAL DRAWING

Competence

RQF Level: 3

Learning Hours



Credits: 8

Sector: Construction and Building Services

Trade: PUBLIC WORKS

Module Type: General

Curriculum: CBSPWO3001- TVET Certificate III in Public Works

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1200

Purpose statement	At the end of this module, learners will be able to apply drawing scales, dimensions, make lettering, draw figures, solids and make projections of points, lines and figures in three dimensions. It is intended for learners who have successfully completed the ordinary level in general education and pursuing level 3 in Public Works or applying for recognition of prior learning or other related qualifications. Qualified learners deemed competent to this competency shall have ability to take responsibility for the carrying out of a range of defined activities in Public Works under non- directive supervision.					
Learning assumed to be in place	N/A					
Delivery modality	Training delivery		100%	Assessment		Total 100%
	Theoretical content		30%	Formative assessment	30%	100%
	Practical work:		70%		70%	
	Group project and presentation	10%				
	Individual project /Work	70%				

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Identify drawing materials, instruments and equipment	1.1. Drawing materials are properly identified according to their uses
	1.2. Drawing instruments are properly identified according to their uses
	1.3. Drawing equipment are properly identified according to the task assigned
2. Use drawing, materials, instruments and equipment	2.1. Drawing materials are accurately used according to the task assigned
	2.2. Drawing instruments are accurately used according to the task assigned
	2.3. Equipment are accurately used according to the task assigned
3. Interpret Lines and Symbols	3.1. Types of lines are properly described according to the uses
	3.2. Sizes of line are correctly interpreted according to the uses
	3.3. Drawing Symbols used in Construction drawing are accurately interpreted with respect to their uses
4. Apply drawing scales, dimensions and lettering	4.1. Scales are accurately applied in technical drawing according to the measurements
	4.2. Dimensions are systematically applied to technical drawings according to the standards
	4.3. Lettering is conveniently done with respect to the style
5. Draw figures, solids	5.1. Geometrical figures and solids are precisely drawn as per the procedures

and projections	5.2. Type of projection are properly differentiated according to the standards
	5.3. Views and sections are correctly drawn according to the object provided

Learning outcomes	At the end of the module the learner will be able to: <ol style="list-style-type: none"> 1. Identify drawing materials, instruments and equipment 2. Use drawing, materials, instruments and equipment 3. Interpret Lines and Symbols 4. Apply drawing scales, dimensions and lettering 5. Draw figures, solids and projections
Learning outcome 1: Identify drawing materials, instruments and equipment	Learning hours: 5
Indicative content	
<ul style="list-style-type: none"> • Identification of drawing materials <ul style="list-style-type: none"> ✓ Types of Drawing ✓ Types of papers ✓ Identification of paper formats ✓ Identification of pencil grades • Identification drawing instruments <ul style="list-style-type: none"> ✓ Writing instrument ✓ Tracing instrument ✓ Accessory instruments • Identification drawing equipment <ul style="list-style-type: none"> ✓ Drawing board ✓ Mini-Draughter 	
Resources required for the learning outcome	
Equipment/instrument	<ul style="list-style-type: none"> • Tracing instrument • Drawing board
Materials	<ul style="list-style-type: none"> • Paper, Eraser, Masking tape, Ink, Lead mine

	<ul style="list-style-type: none"> • Drawing pencil.
Tools	<ul style="list-style-type: none"> • Ink-pen, tracing instrument, Rulers, Setsquares, Protractor, Compass • Scale ruler, Stencils, Template, Proportion divider, Pencil sharpener • Drawing board, Letter tracing, Drawing pins and clips.
Facilitation techniques	<ul style="list-style-type: none"> • Lectures, Demonstration and simulation, Individual and group work, Individualized ,Trainer guided, Group discussion
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment ,Oral presentation

Learning outcome 2: Use drawing, materials, instruments and equipment

Learning hours: 10

Indicative content

- **Use of drawing Materials**
 - ✓ Preparation and maintenance of drawing paper
 - ✚ Tracing of margin
 - ✚ Title block content
 - ✚ Paper fold
 - ✓ Use of ink pens and pencils
- **Use of drawing instruments.**
 - ✓ Use of setsquares
 - ✓ Use of ruler and protractor
 - ✓ Use of compass
- **Use of drawing equipment**
 - ✓ Setting of drawing equipment
 - ✓ Role of drawing equipment

Resources required for the indicative content

Equipment	<ul style="list-style-type: none"> • Drawing board
Materials	<ul style="list-style-type: none"> • Drawing handout, paper, ink, eraser, pencil, pencil lead
Tools	<ul style="list-style-type: none"> • Protractor, drawing pins and clips, compass, drawing pencils.

	<ul style="list-style-type: none"> • Protractor, drawing pins and clips • Compass, Drawing pencil,
Facilitation techniques	<ul style="list-style-type: none"> • Lectures, Demonstration and simulation, Individual and group work, • Practical exercise , Individualized, Trainer guided, Group discussion
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment ,Oral presentation, Performance assessment
Learning outcome 3: Interpret Lines and Symbols	
Learning hours: 10	
Indicative content	
<ul style="list-style-type: none"> • Description of lines and symbols <ul style="list-style-type: none"> ✓ Types of lines used in drawing ✓ Description of drawing lines • Interpretation of line <ul style="list-style-type: none"> ✓ Identification of size of lines ✓ Use of drawing lines types • Interpretation of drawing symbols <ul style="list-style-type: none"> ✓ Definition of symbols for technical drawing ✓ Functions of symbols for technical drawing ✓ Types of symbols 	
Resources required for the indicative content	
Equipment	<ul style="list-style-type: none"> • Drawing board, table
Materials	<ul style="list-style-type: none"> • Paper,Ink ,Eraser ,Pencil ,lead
Tools	<ul style="list-style-type: none"> • Protractor,drawing pins and clips, compass, drawing pencils. • Protractor, drawing pins and clips
Facilitation techniques	<ul style="list-style-type: none"> • Lectures • Demonstration and simulation • Individual and group work • Practical exercise • Individualized • Trainer guided

	<ul style="list-style-type: none"> • Group discussion
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment, Oral presentation , Performance assessment • Product based assessment , Project based assessment
Learning outcome 4: Apply drawing scales, dimensions and lettering	
Learning hours: 20	
Indicative content	
<ul style="list-style-type: none"> • Application of drawing scale <ul style="list-style-type: none"> ✓ Description of drawing Scales ✓ Sizes of Scales ✓ Scale Representation • Application of drawing dimensions <ul style="list-style-type: none"> ✓ Method of dimensioning ✓ Elements of dimensioning ✓ Arrangement of dimensions • Drawing Lettering <ul style="list-style-type: none"> ✓ Features of lettering ✓ Classification of lettering ✓ Style of freehand lettering 	
Resources required for the indicative content	
Equipment	<ul style="list-style-type: none"> • White boards, Marker pens, Books , Papers , Calculators , Scale rulers , • Pencils, Rubber, Compass, T square, Protractor, Pencil sharpener
Materials	<ul style="list-style-type: none"> • Paper, Ink, Eraser, Pencil, Lead, Masking tape
Tools	<ul style="list-style-type: none"> • White boards, Marker pens, Books, Papers, Calculators, Scale rulers • Pencils, Rubber, Compass, T square, Protractor, Pencil sharpener
Facilitation techniques	<ul style="list-style-type: none"> • Lectures, Demonstration and simulation, Individual and group work • Practical exercise, Individualized , Trainer guided, Group discussion
Formative assessment methods	<ul style="list-style-type: none"> • Written assessment , Oral presentation, Performance assessment • Product based assessment, Project based assessment
Learning outcome 5: Draw figures, solids and projections	
Learning hours: 35	
Indicative content	
<ul style="list-style-type: none"> • Drawing of figures and solids <ul style="list-style-type: none"> ✓ Types of Dimensions ✓ Drawing of lines 	

- ✓ Drawing of Triangle
- ✓ Drawing of a circle
- ✓ Polygons
- ✓ Conics sections
- ✓ Solids

- **Types of projections**

- ✓ Pictorial Projection
 - ✚ Perspective
 - ✚ Axonometric
 - ✚ Oblique
- ✓ Orthographic projection
 - ✚ Plane of Projections
 - ✚ Angles of Projections
 - ✚ Dimensions of Object Views

- **Views and Sections of objects**

- ✓ Front and Rear view
- ✓ Sides view
- ✓ Top and Bottom
- ✓ Longitudinal section
- ✓ Transversal section

Resources required for the indicative content

Equipment	<ul style="list-style-type: none"> • White boards ,Marker pens ,Books ,Drawing Papers , • Calculators ,RulersPencils ,Rubber ,Compass ,T square , • Protractor, Divider ,Drawing tables ,Drawing boards
Materials	<ul style="list-style-type: none"> • Paper, Ink, Eraser • Pencil, Lead, Masking tape
Tools	<ul style="list-style-type: none"> • White boards ,Marker pens ,Books ,Drawing Papers , • Calculators ,Rulers ,Pencils ,Rubber ,Compass ,T square , • Protractor, Divider ,Drawing tables ,Drawing boards
Facilitation techniques	<ul style="list-style-type: none"> • Lectures, Demonstration and simulation, Individual and group work, Practical exercise, Individualized, Trainer guided, Group discussion

Formative assessment methods	<ul style="list-style-type: none">• Written assessment, Oral presentation ,Performance assessment• Product based assessment, Project based assessment
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