7.1.0 APPLIED DRAWING

7.1.1 Introduction

The module unit is designed to equip the trainee with knowledge, skills and attitudes necessary to use drawing principles in the design, preparation, interpretation and implementation of typical drawings used in building construction

7.1.2 General Objectives

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

a) Use drawings as a means of communication
b) Interpret working drawings prepared for implementation
c) Prepare working drawings

7.1.3 Module Unit Summary and Time Allocation

Applied Drawing

Code	Sub-Module Unit	Content	Time (Hours)		
			Theory	Practice	Total
7.1.01	Introduction	• Importance of applied drawing • Drawing instruments and equipment • Use and care of drawing instruments • Paper layout • Lines used in drawing • Dimensioning • Abbreviations and symbols • Lettering	1	6	7
7.1.02	Plane Geometry	• Construction of scales • Polygons • Tangents • Enlargement and reduction of areas • Parabola • Ellipses • Loci	2	10	12
7.1.03	Orthographic Projection	• First angle and Third angle	2	16	18

Code	Sub-Module Unit	Content	Time (Hours)		
			Theory	Practice	Total
		• Conversion of Pictorial drawings • Sectional views			
7.1.04	Pictorial Drawing	• Isometric drawing • Oblique drawing • Axonometric drawings • Perspective drawings	2	16	18
7.1.05	Solid Geometry	• Surface development • Interpenetration • Sectioning	2	18	20
7.1.06	Building Drawing	• Plans • Elevations • Roof geometry • Sections • Details	6	18	24
Total			**15**	**84**	**99**

7.1.01 INTRODUCTION

7.1.01C Competence

The trainee should have the ability to construct various elements of plain geometry using a given scale

Theory

7.1.01T0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:

a) state the importance of applied drawing
b) identify and use drawing instruments and equipment
c) carry out proper care and maintenance of drawing instruments
d) layout drawing paper
e) identify lines used in drawing
f) use correct lettering methods
g) draw symbols and abbreviations
h) dimensional drawing

Content

7.1.01T1 Importance of applied drawing
7.1.01T2 Drawing instruments
7.1.01T3 Use and care of drawing instruments
7.1.01T4 Paper layout
7.1.0 1T5 Lines used in drawing
7.1.01T6 Lettering methods
7.1.01T7 Symbols and abbreviations
7.1.01T8 Dimensioning
i) circles
ii) angles
iii)length

Practice

7.1.01P0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:

a) maintain drawing instruments in good working order
b) draw different types of lines
c) print in different lettering styles

Content

7.1.01P1 Maintenance of drawing instruments and equipment
7.1.01P2 Drawing lines
7.1.01P3 Printing letters

Suggested Teaching/Learning Resources

- Textbooks
- Drawing materials
- Drawing instruments and equipment
- Models
- Charts
- Computer applications

Suggested Teaching/Learning Activities

- Demonstration
- Discussion
- Sketching
- Illustration
- Practice

Suggested Assessment Methods

- Written tests
- Assignment

7.1.02 PLANE GEOMETRY

7.1.02C Competence

The trainee should have the ability to:

i) Apply scale in drawings
ii) Construct various elements of plane geometry

Theory

7.1.02T0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:

a) Interpret different types of scales
b) draw different polygons
c) construct tangents
d) outline the methods of reducing and enlarging figures
e) construct parabolas
f) draw ellipses
g) construct loci

Content

7.1.02T1 Types of scales
7.1.02T2 Polygons
7.1.02T3 Tangents
7.1.02T4 Methods of reducing and enlarging figures
7.1.02T5 Parabola
7.1.02T6 Ellipse
7.1.02T7 Loci

Practice

7.1.02T0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:

a) construct a pre-determined scale
b) enlarge or reduce given figures
c) construct an ellipse using different methods
d) construct polygons using different methods

e) construct a parabola from a given data
f) construct loci from given data

Content

7.1.02P1 Construction of scales
i) plain
7.1.02P2 Enlargement and reduction of areas
7.1.02P3 Ellipses
7.1.02P4 Polygons
7.1.02P5 Parabola
7.1.02P6 Loci

Suggested Teaching/Learning Resources
- Textbooks
- Drawing materials
- Drawing instruments
- Models
- Charts
- Computer applications

Suggested Teaching/Learning Activities
- Demonstration
- Discussion
- Sketching
- Illustration
- Practice

Suggested Assessment Methods
- Written tests
- Assignments
- Oral questions

7.1.03 ORTHOGRAPHIC PROJECTION

7.1.03C Competence

The trainee should have the ability to:
i) Draw objects in 1st and 3rd angle projection
ii) Use orthographic projection principles to interpret pictorial drawings

Practice

7.1.03P0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:
a) draw given objects in 1st and 3rd angle projections
b) convert given pictorial drawings into orthographic drawings
c) draw sectional views of given pictorial drawings

Content

7.1.03P1 First and third angle projection
i) orientation of views
ii) front elevation
iii) plan
iv) end view
v) sectional views
7.1.03P2 Conversion of pictorial drawing into orthographic

i) isometric views with inclined views, curves and circles
ii) oblique views with inclined sides, curves and circles

7.1.03P3 Sectional views of given pictorial drawings
i) cutting plane
ii) hatching
iii) sectional views

7.1.03P4 symbols and abbreviations

Suggested Teaching/Learning Activities
- Demonstration
- Discussion
- Sketching
- Illustration
- Practice

Suggested Teaching/Learning Resources
- Drawing instruments and equipment
- Models
- Charts
- Overhead projector
- Slides

Suggested Assessment Methods
- Written tests
- Assignments
- Oral questions

7.1.04 PICTORIAL DRAWINGS

7.1.04C Competence

The trainee should have the ability to draw and interpret pictorial drawings

Theory

7.1.04T0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to outline the procedure for constructing:
a) isometric drawing
b) oblique drawing
c) perspective drawings
d) axonometric drawings

Content

7.1.04T1 Isometric drawing

7.1.04T2 Oblique drawing
i) cabinet
ii) cavalier

7.1.04T3 Perspective drawings

7.1.04T4 Axonometric drawings

Practice

7.1.04P0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:
a) construct isometric drawings through

scaled drawing and free-hand sketches

b) construct oblique projection of given objects

c) construct perspective drawing

Content

7.1.04P1 Isometric drawing
- i) objects in isometric
- ii) freehand sketching
- iii) circles
- iv) curves

7.1.04P2 Oblique
- i) cabinet
- ii) cavalier

7.1.04P3 Perspective drawings
- i) one point
- ii) two point
- iii) interior

Suggested Teaching/Learning Activities
- Demonstration
- Discussion
- Sketching
- Illustration
- Practice

Suggested Teaching/Learning Resources
- Textbooks
- Drawing materials
- Drawing instruments
- Models
- Charts
- Internet
- Computer applications

Suggested Assessment Methods
- Written tests
- Assignments
- Written questions

7.1.05 SOLID GEOMETRY

7.1.05C Competence

The trainee should have the ability to produce surface development of a given object

Theory

7.1.05T0 *Specific Objectives*

By the end of the sub-module unit, the trainee should be able to:

a) produce the surface development of various objects using different methods

b) describe the procedure of carrying out development by interpenetration

c) construct sections of objects

Content

7.1.05T1 Surface development
- i) auxiliary views
- ii) true lengths

iii) true surfaces

7.1.05T2 Interpenetration using different methods

7.1.05T3 Sectioning
i) vertical
ii) horizontal

Practice

7.1.05P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
a) draw surface developments of selected geometrical solids
b) produce drawings by interpenetration
c) draw sections of cut solids
d) produce auxiliary views by 1st, 2nd, 3rd auxilliary

Content

7.1.05P1 Surface development
i) cylinders
ii) cones
iii)frustums

7.1.05P2 Interpenetration

7.1.05P3 Sectioning

7.1.05P4 Auxiliary views

Suggested Teaching/Learning Resources
- Textbooks
- Drawing materials
- Drawing instruments
- Models
- Charts
- Internet
- Computer applications

Suggested Teaching/Learning Activities
- Demonstration
- Discussion
- Sketching
- Illustration
- Practice

Suggested Assessment Methods
- Written tests
- Oral tests
- Practical projects
- Assignments

7.1.06 BUILDING DRAWING

7.1.04C Competence
The trainee should have the ability to draw building drawings using drawing instruments

Theory

7.1.06T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
a) identify symbols and abbreviations used as representation on building drawings

b) describe the layout of building drawings
c) illustrate the detailing of a building drawing

Content

7.1.06T1 Representation
i) symbols
ii) abbreviations (materials)
iii) scales and dimensions

7.1.06T2 Layout of buildings
i) location drawing
ii) floor plan
iii) elevations
iv) sections and details
v) roof plan

7.1.06T3 Illustration
i) vertical, horizontal sections
ii) materials

Practice

7.1.06P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
a) produce plans, elevations and sections of a building
b) detail architectural drawing to include various design components

Content

7.1.06P1 Plans, elevation and sections and foundations

7.1.06P2 Detailing
i) roof
ii) walls
iii) beams
iv) column
v) stairs
vi) chimneys
vii) roof geometry

Suggested Teaching/Learning Activities
- Sketching
- Interpretation
- Practice
- Site visits

Suggested Teaching/Learning Resources
- Textbooks
- Architectural drawings
- Drawing equipment
- Drawing material
- Model and charts

Suggested Assessment Methods
- Practical tests
- Assignments
- CATs
- Project