

18.2.0 COMPUTER AIDED DESIGN AND DRAUGHTING (CADD)

18.2.1 Introduction

This module unit involves use of Computer Aided Design and Draughting (CADD) software in the production of building drawings. It is designed to equip the trainee with up to date computer graphics skills necessary for design, production and presentation of building construction drawings, details and specifications.

18.2.2 General Objectives

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

- a) Use presentation of building drawings in CADD softwares in design and presentation
- b) Produce, edit and plot working drawings for building construction

18.2.3 Module Unit Summary and Time Allocation

Computer Aided Design and Draughting (CADD)

Code	Sub-Module Unit	Content	Time (Hours)		
			Theory	Practice	Total
18.1.01	Introduction to Computer Aided Design And Draughting (CADD)	<ul style="list-style-type: none">• Definition of types of CADD software• Introduction to CADD environment• Conversion of drawings to different formats	4	10	14
18.2.02	Lines	<ul style="list-style-type: none">• Setting units, scales and coordinates• Different types of lines	2	10	12
18.2.03	3-Dimensional Drawings	<ul style="list-style-type: none">• Metric projections• Perspectives• Rendering	2	26	28
18.2.04	Building Drawings	<ul style="list-style-type: none">• Site plan• Floor plan• Elevations• Sections	3	14	17

Code	Sub-Module Unit	Content	Time (Hours)		
			Theory	Practice	Total
		<ul style="list-style-type: none"> • 3-Dimensional views • Construction details 			
18.2.05	Creating Layouts and Printing	<ul style="list-style-type: none"> • Creating Layouts • Printing • Saving and editing layouts 	2	26	28
Total			13	86	99

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18.2.01 INTRODUCTION TO COMPUTER AIDED DESIGN AND DRAFTING (CADD)

18.2.01C Competence

The trainee should have the ability to convert drawings to different CADD formats

Theory

18.2.01T0 *Specific Objectives*
By the end of this sub-module unit the trainee should be able to:

- a) define different types of CADD software
- b) explain the features of CADD environment

Content

18.2.01T1 Definition of types of CADD software

18.2.01T2 Features of the CADD environment

- i) drawings windows
 - floor plan
 - section
 - elevation
 - schedules
 - 3 dimension
 - perspectives
 - details
- ii) floating pallets
- iii) menus
- iv) toolbars

Practice

18.2.01P0 *Specific Objective*
By the end of the sub-module unit, the trainee should be able to convert drawings to different formats.

Content

18.2.01P1 Conversion of different file formats

- i) dwg
- ii) pln
- iii) pdf
- iv) jpg
- v) bmp
- vi) dxf

Suggested Teaching/Learning Resources

- Computers
- Computer softwares
- Text books

Suggested Teaching/Learning Activities

- Demonstrations
- Discussion
- Exercises
- Question and answer

Suggested Assessment Method

- Assignments

18.2.02 LINES

18.2.02C Competence

The trainee should have the ability to draw lines and planes

Theory

- 18.2.02T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- set units, scale and coordinates to draw lines and planes
 - describe different types of lines

Content

- 18.2.02T1 Settings
- units
 - scales
 - coordinates
- 18.2.02T2 Type of lines

Practice

- 18.2.02P0 *Specific Objective*
By the end of the sub-module unit, the trainee should be able to draw different types of lines

Content

- 18.2.02P1 Types of lines

Suggested Teaching/Learning Activities

- Demonstrations
- Discussion

- Exercises
- Question and answer

Suggested Teaching/Learning Resources

- Computers
- Computer softwares
- Text books

Suggested Assessment Method

- Assignments
- Practical exercises

18.2.03 3 DIMENSIONAL DRAWINGS

18.2.03C Competence

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

Theory

- 18.2.03T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- describe the process of generating metric projections
 - describe the process of perspectives
 - describe the process of

rendering pictorial drawings

ii) exterior perspective

Content
18.2.03T1 Metric projections

- i) isometric
- ii) axonometric

18.2.03T2 Perspectives

- i) interior perspective
- ii) exterior perspective

18.2.03T3 Rendering

- i) texture
- ii) materials
- iii) light
- iv) color
- v) landscape
- vi) sky
- vii) objects
- viii) human beings

Practice

18.2.03P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:

- a) draw metric projections
- b) draw perspectives
- c) render pictorial drawings

Content

18.2.03P1 Metric projections

- i) isometric
- ii) axonometric

18.2.03P2 Perspectives

- i) interior perspective

18.2.03P3 Rendering

- i) texture
- ii) materials
- iii) light
- iv) color
- v) landscape
- vi) sky
- vii) objects
- viii) human beings

Suggested

Teaching/Learning Activities

- Demonstrations
- Discussion
- Exercises
- Question and answer

Suggested

Teaching/Learning Resources

- Computers
- Computer softwares
- Text books
- Internet

Suggested Assessment

Method

- Assignments
- Practical exercises

18.2.04 BUILDING DRAWINGS

18.2.04C Competence

The trainee should have the ability to draw and render building drawings

Theory

- 18.2.04T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- describe the process of drawing building site
 - discuss the process of drawing building floor
 - discuss the process of generating elevations of buildings using CADD software
 - explain the process of generating sections of building using CADD software
 - outline the process of generating 3-dimensional views of buildings
 - describe the process of drawing building construction details using CADD software

Content

- 18.2.04T1 Building site plans
18.2.04T2 Floor plans
18.2.04T3 Elevations
18.2.04T4 Sections
18.2.04T5 3-Dimensional views of buildings
18.2.04T6 Construction details

Practice

- 18.2.04P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- draw building site plans using CADD software
 - draw building floor plans using CADD software
 - generate building elevations using CADD software
 - generate building sections using CADD software
 - generate 3-dimensional views of buildings using CADD software
 - drawing building construction details using CADD software

Content

- 18.2.04P1 Building site plans using CADD software
18.2.04P2 Floor plans using CADD software
18.2.04P3 Elevations using CADD software
18.2.04P4 Sections using CADD software
18.2.04P5 3-Dimensional views of buildings
18.2.04P6 Construction details

Suggested Teaching/Learning Activities

- Demonstrations
- Discussion
- Exercises

Suggested Teaching/Learning Resources

- Computers
- Computer softwares
- Textbooks
- Printers
- Plotters
- Paper

Suggested Assessment Methods

- Assignments
- Practical assessment

- c) describe the process of saving and editing layouts

Content

- 18.2.05T1 Layouts
 - i) title blocks
 - ii) setting scales
 - iii) arrangement of drawings
 - iv) paper sizes
 - v) paper orientation
- 18.2.05T2 Printing
 - i) pen sizes
 - ii) paper sizes
 - iii) printers
 - iv) plotters
- 18.2.05T3 Process of saving and editing layouts
 - i) save the drawing
 - pdf
 - normal
 - ii) edit

18.2.05 CREATING LAYOUTS AND PRINTING

18.2.05C Competence
The trainee should have the ability to print drawings

Theory

18.2.05T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
a) create layouts
b) outline the procedure of print drawings

Practice

18.2.05P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
a) create layouts
b) print drawings

18.2.05P1 *Content*
Layouts

- i) title blocks
- ii) setting scales
- iii) arrangement of drawings
- iv) paper sizes
- v) paper orientation

18.2.05P2 Printing

- i) Pen sizes
- ii) Paper sizes
- iii) Printers
- iv) plotters

*Suggested
Teaching/Learning
Activities*

- Demonstrations
- Discussion
- Exercises
- Question and answer

*Suggested Teaching/
Learning Resources*

- Computers
- Computer softwares
- Text books
- Printers
- Plotters
- Paper

*Suggested Assessment
Method*

- Assignment
- Practical assessment

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