

22.2.1

Introduction

This module unit involves construction of buildings and related building works from foundations, walls, roofs, finishes and demolitions works. It is designed to equip the trainee with knowledge, skills and attitudes necessary to enable the trainee to work in a workshop or in a construction site.

The trainee should have basic knowledge in technical/building drawing and skills in use of tools and equipment used in building trades as well as building materials.

22.2.2

General Objectives

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

- appreciate the need of observing safety rules at the place of work
- demonstrate ability to use tools and equipment safely and correctly
- appreciate the need of matching colours of the interior furnishings
- understand the purpose of fixing or applying finishes to a building or construction project

22.2.03

Module Unit Summary and Time Allocation – (44 Hours)

Code	Sub Module Units	Content	Total Hours
22.2.01	Upper Floors	<ul style="list-style-type: none"> Types of Floors Design Requirements for Upper Concrete Floors Openings and Services in Upper Concrete Floors 	12
22.2.02	Roofs	<ul style="list-style-type: none"> Functional Requirement Timber Roofs Concrete Roofs Forms of Roof Construction 	12
22.2.03	Construction of Roofs	<ul style="list-style-type: none"> Types of Roof Structure Type of Roofing Materials Designing Roof Structures 	12

22.2.04	Roof Covering	<ul style="list-style-type: none">• Types of Roof Covering• Pre-Coated and Granulated Sheets• Estimating	8
Total			44

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UPPER FLOORS

Theory

- 22.2.01T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- describe types of upper floors
 - design upper concrete floors
 - provide openings and services in upper concrete floors

- 22.2.01C *Competence*
The trainee should have the ability to:
- cast and cure concrete upper floors
 - construct suspended timber floors

Content

- 22.2.01T1 Types of floors
- timber
 - concrete
 - o solid concrete
 - o precast concrete floor
 - o hollow pots
- 22.2.01T2 Design requirements for upper concrete floors
- 22.2.01T3 Openings and services in upper concrete floors
- electrical conduits
 - pipes and ducts

22.2.01P0

Practice

- Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- cast and cure concrete in upper floors
 - construct suspended timber floors

22.2.01P1

Content

- Casting and curing suspended concrete floors
- concrete mix
 - compaction
 - curing

22.2.01P2

- Construction of suspended timber floors
- joists and beams
 - decking

22.2.02

ROOFS

Theory

- 22.2.02T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- state the functional requirements of roofs
 - describe types of timber roofs
 - describe members of concrete roofs
 - describe forms of roof construction

22.2.02C

Competence
The trainee should have the ability to design roof

22.2.02T1

Content
Functional requirements of a roof

- appearance
- strength
- durability
- weather resistance
- fire resistance

- a) identify the type of roof structure to be constructed
- b) outline the type of materials used for constructing the roof structure
- c) design selected roof structure

22.2.02T2

Timber roofs

- single roofs
 - o collar
 - o couple
 - o close couple
 - o lean to
- double roofs
 - o framed roofs
 - o trussed roof
 - o pitched roofs

22.2.03C

Competence
The trainee should have the ability to:

- i) cost roof materials
- ii) select materials for a given roof
- iii) construct a roof
- iv) fix a roof structure in position

22.2.02T3

Concrete roofs

22.2.02T4

forms of roof construction

(i) Special roofs

- shell roofs

(ii) Members of a roof

- rafters
- purlins
- tie beam
- ties

22.2.03T1

Content
Types of roof structures

- single
- double
- trussed triple
- timber
- steel
- concrete

22.2.03T2

Types of materials

- timber
- steel
- concrete

22.2.03T3

Designing roof structures

- span
- rise
- pitch
- type of roof coverings materials
- weather

22.2.03

CONSTRUCTION OF ROOFS

Theory

22.2.03T0

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

Practice

- 22.2.03P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- a) cost materials for the roof structure
 - b) construct the roof structure
 - c) fix the roof structure in position

Content

- 22.2.03P1 Costing materials
- type
 - quantities/sizes
 - price list
- 22.2.03P2 Roof structure construction
- 22.2.03P3 Methods of joining roof structure to the walls

22.2.04 ROOF COVERINGS

Theory

- 22.2.04T0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- a) describe types of roof coverings
 - b) select roof covering materials
 - c) estimate materials for covering a roof

- 22.2.04C *Competence*
The trainee should have the ability to:
- i) estimate

- ii) cost roof coverings
- iii) fix roof coverings
- iv) select roof coverings

Content

- 22.2.04T1 Types of roof coverings
- grass
 - makuti
 - corrugated iron sheet (G.C.I.)
 - tiles
 - asbestos sheets
- 22.2.04T2 Precoated and granulated sheets
- 22.2.04T3 Estimating
- measurements
 - bolting
 - laying
 - tying

Practice

- 22.2.04P0 *Specific Objectives*
By the end of the sub-module unit, the trainee should be able to:
- a) estimate the quantity of materials for covering a roof
 - b) cost the roof covering materials
 - c) fix roof coverings

Content

- 22.2.04P1 Estimation
- measurements
- 22.2.04P2 Costing roof coverings
- measurements
- 22.2.04P3 Methods of fixing
- nailing
 - bolting
 - laying

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CHECKED saw

- tying

Suggested Teaching/Learning Methods

- Discussion
- Lecture
- Observation
- Sketching
- Illustration
- Calculations
- Demonstration

Suggested Teaching/Learning Resources

- Photos
- Site visits
- Materials
- Tools
 - tape measure
 - hammer
 - nails
 - bolts

Working drawings
Charts

Suggested Assessment Methods

- Written tests
- Projects
- Assignments
- Practical exercises

Tools and Equipment

- Hand saws
- Measuring tapes
- Nails, bolts
- Poker vibrators
- Concrete mixers
- Wheelbarrows
- Spades
- Trowels
- Headpans
- Ladders/scaffolds

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