

## 37.3.0 ESTIMATING AND COSTING II

### 37.3.1 Introduction

This module unit involves equipping trainees with knowledge, skills and attitudes in categories, evaluating building units and components. Upon completion of the module, one can work as an Assistant Quantity Surveyor among other fields of work. It is designed to equip the trainees with knowledge, skills and attitude necessary for carrying out cost evaluation and price analysis in various building structures.

The trainee should have basic knowledge of mathematics and general building construction Module I work to proceed with this module.

### 37.3.2 General Objectives

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

- understand working principles of estimating and costing
- carry out research work to provide data for planning, design, in order to plan, analyse the cost target of a building
- apply the evaluation skills to cost control construction works

### 37.3.3 Module Unit Summary and Time Allocation – (77 Hours)

Code	Sub Module Units	Content	Total Hours
37.3.01	Build up of Unit Rates	Preliminaries <ul style="list-style-type: none"><li>• Items</li><li>• Services</li></ul>	5
		Mechanical Plant <ul style="list-style-type: none"><li>• Owning/hiring costs</li><li>• Rates per unit work</li><li>• Running costs/cycle</li><li>• Matching plant</li></ul>	5
		Sub-structures <ul style="list-style-type: none"><li>• Excavations</li><li>• Water removal</li><li>• Plumbing shuttle</li></ul>	5
		Concrete work <ul style="list-style-type: none"><li>• Building elements</li><li>• Formwork</li><li>• Reinforcement</li></ul>	8
		Ground floor <ul style="list-style-type: none"><li>• Treatment</li></ul>	5

Code	Sub Module Units	Content	Total Hours
		<ul style="list-style-type: none"> <li>• Anti-termite</li> <li>• Damp proofing</li> </ul>	
		Walling <ul style="list-style-type: none"> <li>• Block</li> <li>• Brick</li> <li>• Concrete</li> <li>• Timber</li> </ul>	9
		Roof work <ul style="list-style-type: none"> <li>• Pitched</li> <li>• Flat</li> <li>• Roof covering</li> <li>• Roof structure</li> </ul>	8
		Finishes <ul style="list-style-type: none"> <li>• Floor</li> <li>• Wall</li> <li>• Ceilings</li> </ul>	5
		Doors/windows <ul style="list-style-type: none"> <li>• Types</li> <li>• Frames</li> <li>• Glazing</li> <li>• Mouldings</li> </ul>	5
		Drainage Excavation Inspection Channels Septic tank	9
		Plumbing works Pipe wall Appliances	5
		Road Pavements Earthworks Road structure	4
		Fencing/gates Open Gates	4
<b>Total</b>			<b>77</b>

## BUILD UP OF UNIT RATES

### *Specific Objectives*

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

- a) build up rates for preliminary items
- b) build up unit rates for mechanical plant
- c) build up unit rate for building work
- d) prepare tender document

37.3.01C

### *Competence*

The trainee should have the ability to:

- i) estimate these costs of preliminary items
- ii) built up unit tare for building works
- iii) cost for building works

### *Content*

37.3.01T1

Preliminary items

- water for the work
- site huts
- general foreman
- sign boards
- transport
- access roads
- other services

37.3.01T2

Mechanical plant

- owning cost
- running cost
- hire rate
- cycle time/output
- matching with support plant

37.3.01T2

Unit rate of building works

- rate per unit of work
- excavation and earthworks using manual labour
- mechanical over site excavation
- trench excavation
- basement excavation
- back filing
- disposal
- water removal
- planking and strutting

37.3.01T4

Concrete work (using manual/mechanical plant)

- foundation
- beams
- columns
- floor slabs
- stairs
- kerbs
- formwork
- reinforcement (bar/mesh)

37.3.01T5

Hardcore

- filling
- blinding
- termite treatment
- damp proof membrane

37.3.01T6

Walling

- brick work (clay, concrete)
- block work
- natural stone
- DPC stabilized earth blocks

- timber frame walling
  - 37.3.01T7 Roof work (flat and pitched)
    - structural members
    - roof covering (sheets, tiles, felts, asphalt)
    - finishes
  - 37.3.01T8 Floor finishes
    - cement sand screed, skirting, PVC tiles, granolithic, terrazzo
    - wall finishes (plaster, painting)
    - ceiling finishes (brandering, ceiling boards)
  - 37.3.01T9 Doors and windows
    - doors (flush, panel, boarded)
    - frames/linings
    - windows (ironmonger, painting)
    - glazing (putty, beading)
    - architrave and mouldings
  - 37.3.01T10 Drainage works
    - excavations
    - pipe work
    - benching
  - 37.3.01T11 Manholes
    - excavations
    - bedding
    - walling
    - benching
    - rendering
    - manhole covers
    - step irons
  - 37.3.01T12 Plumbing works
    - pipe work
    - appliances
  - 37.3.01T13 Road pavement (flexible and rigid)
    - earthworks
    - subgrade
    - road base
    - surfacing
    - kerbs and channels
  - 37.3.01T14 Fencing and gates
    - open fencing
    - gates
  - 37.3.01T15 Tendering
    - tendering process
    - submission of tender
- Suggested Teaching/Learning Methods*
- Discussion
  - Information gathering
  - Cost estimation
  - Field visit
- Suggested Teaching/Learning Resources*
- Textbooks
  - Manuals
  - Resource persons
- Suggested Assessment Methods*
- Oral
  - Written
  - Practical tests
- Tools and Equipment**
- Computers
  - Calculators