

SURVEYING II

Introduction

This module unit involves the study of the processes of establishing points on part of the earth's surface in relation to other points of known altitude and bearing. It is intended to equip the trainee with knowledge, skills and attitudes necessary in computing heights of points and their bearings which is necessary in construction works.

General Objectives

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

- understand working principles of survey instruments
- carry out survey work to provide data for planning, design and construction works
- apply surveying skills to control construction works
- appreciate modern technologies in surveying field

Module Unit Summary and Time Allocation – (44 Hours)

Code	Sub-Module Units	Content	Total Hours
24.2.01	Curve Ranging	<ul style="list-style-type: none">Definitions and TerminologiesTools and Equipment AdjustmentsSimple Circular CurvesSetting Out CurvesTraversing Terms	19
24.2.02	Traversing	<ul style="list-style-type: none">Methods of TraversingCoordinatesTypes of TraversingErrorsComputations and Plotting	25
Total			44

24.2.01	CURVE RANGING	24.2.01T3	Methods of setting out simple circular curves - Offsets - Theodolite
	Theory	24.2.01T4	Obstacles - Inaccessible intersection points - Inaccessible tangent points
24.2.01T0	<i>Specific Objectives</i> By the end of the sub-module unit, the trainee should be able to: a) define various terms used in curve ranging b) describe tools and equipment for curve ranging c) describe principles of curve ranging d) outline methods of overcoming obstacles encountered in curve ranging	24.2.01P0	<i>Specific Objectives</i> By the end of the sub-module unit, the trainee should be able to: a) select tools and equipment for curve ranging b) set out simple circular curves using various methods c) compute data for setting out curves d) set out offsets e) use a theodolite
23.2.01C	<i>Competence</i> The trainee should have the ability to: i) compute data for setting out curves ii) set out simple circular curves iii) overcome obstacles while setting out		<i>Practice</i>
	<i>Content</i>	24.2.01P1	<i>Content</i> Tools and equipment
24.2.01T1	Terminologies - Curve elements - Theodolite terms	24.2.01P2	Setting out curves
24.2.01T2	Tools and equipments - Components of a Theodolite - Construction of Theodolite	24.2.01P3	Computation of data
		24.2.01P4	Method of off-sets
		24.2.01P5	using a theodolite
		24.2.02	TRAVERSING Theory
		24.2.02T0	<i>Specific Objectives</i> By the end of the sub-module unit, the trainee should be able to:

- a) define terms used in traversing
- b) explain various methods of traversing
- c) describe various types of traversing
- d) outline field procedure of traversing
- e) explain the causes and adjustment of errors

24.2.02P0

Practice

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

- a) select tools and equipment for traversing
- b) conduct a field traverse
- c) analyse data gathered during a field traverse
- d) plot a traverse

24.2.02C

Competence

The trainee should have the ability to:

- i) select tools and equipment used for traversing
- ii) collect field data for a traverse
- iii) analyse data
- iv) plot details of a traverse

24.2.02P1

Content

Tools and equipment

24.2.02P2

Field procedure of traversing

24.2.02P3

Data analysis

24.2.02P4

Plotting

Suggested Teaching/Learning Methods

- Demonstration
- Site visits

Suggested Teaching/Learning Resources

- Tools and equipment
- Samples of plotted traverses

Suggested Assessment Methods

- Oral tests
- Written tests
- Practical tests

Tools and Equipment

- Theodolite
- Compass
- Ranging staff

24.2.02T1

Content

Terminologies

- angles and bearings
- coordinates

24.2.02T2

Methods of traversing

- Compass traverse
- Theodolite traverse

24.2.02T3

Types of traverse

- open
- closed/loop
- on point

24.2.02T4

Field procedure of traversing

24.2.02T5

Errors

- causes
- adjustment