

Unit - I

Introduction and Principles of surveying, Plane and Geodetic Surveying, Control Points, Classification of surveys,

Measurement by chain and tape. Sources of errors and precautions, Corrections to tape measurements, Field problems

Compass surveying, Instruments, Surveyors and Prismatic compass, Bearing of survey lines, systems and conversions, Local attraction,

Traversing, Latitude and departure, Traverse adjustment of closing errors. Computation of coordinates.

Unit II

Different methods of determining elevation; Spirit levelling: Definition of terms, Principle, Construction, Temporary and permanent adjustments of levels. Automatic levels, Levelling staves, Methods of spirit levelling, Booking and reduction of fields notes, Curvature and refraction, Reciprocal leveling,

Trigonometric levelling-simple and reciprocal observations, Sources of errors and precision of levelling procedures. Methods of relief representations, Definition and characteristics of contours, Direct and Indirect methods of contouring, Use of contour maps, Digital Elevation Model.

Unit III

Theodolite surveying, Vernier theodolite, Temporary adjustments, Measurement of horizontal and vertical angles, Methods of repetition and reiteration, errors in theodolite surveying, elimination of errors, permanent adjustments

Tacheometric surveying, Principles, Methods – Stadia system – Fixed and Movable hair methods, Methods with staff held vertical and normal, Analytic lens, Subtense bar, Tangential method.

Unit IV

Plane Table surveying, instruments and accessories, advantages and disadvantages of plane table surveying, methods – radiation, intersection, traversing, resection – Two and three point problems, errors in plane table surveying.

Area and volume computation, area from latitude and departure, Simpson's rule and Trapezoidal rule.

Reference Books:

1. K.R. Arora, "Surveying", Vol. I & II Standard Book House, Delhi,
2. B.C Punmia,., "Surveying", Vol. I, II & III Laxmi Publications New Delhi,
- 3.S.K. Duggal., Surveying Vol. I & II Tata McGraw Hill
4. A.M. Chandra, "Plane Surveying", New Age International Publishers, Delhi
5. R. Subramanian Surveying and Levelling Oxford University Press
6. W. Schofield Engineering Surveying Elsevier
- 7.Charles D Ghilani and Paul R Wolf Elementary Surveying Pearson