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Pre – requisite: NIL

Competencies

1. Understand the basic principles of surveying and can carry out the survey in the field for various infrastructural purposes
2. Handle latest equipments of survey

SYLLABUS

Surveying, Overview of plane surveying (chain, compass and plane table), Objectives, Principles and classifications.

Distances and Direction - Distance measurement conventions and methods; use of chain and tape, Electronic distance measurements, Meridians, Azimuths and Bearings, declination, computation of angle.

Leveling and Contouring - Concept and Terminology, Temporary and permanent adjustments- method of leveling. Characteristics and Uses of contours- methods of conducting contour surveys and their plotting.

Computation of Areas and Volumes - Area from field notes, computation of areas along irregular boundaries and area consisting of regular boundaries. Embankments and cutting for a level section and two level sections with and without transverse slopes, determination of the capacity of reservoir, volume of barrow pits.

Theodolite - Theodolite, description, uses and adjustments - temporary and permanent, measurement of horizontal and vertical angles. Principles of Electronic Theodolite, Trigonometrical leveling, Traversing.

Tachometric Surveying - Stadia and tangential methods of Tacheometry. Distance and Elevation formulae for Staff vertical position.

Curves - Types of curves, design and setting out – simple and compound curves. Introduction to geodetic surveying,

Total Station: Introduction – Accessories with description - Features of total station – Onboard software electronic data reading - Summary of total stations characteristics - Field procedure of total stations in topographic survey, Global positioning system, Introduction to Geographic information system (GIS).

Text Books:

1. Surveying and Levelling by R.Subramanian, Oxford University Press, 2nd edition, 2012
2. Surveying Vol - I, II, III - Dr. B.C . Punmia Laxmi publications, Delhi-6

Reference Books:

1. Surveying and levelling part I & II by Kanetkar.T.P. & S.V.Kulkarni, Puna vidyarthi girha, Prakashan,23rd edition,1993.
2. Arora K. R, “Surveying Vol-I”, Rajsons Publications Pvt. Ltd, 10th Edition, 2008

LIST OF EXPERMENTS

1. Determination of area of a polygon by a ranging and taking offsets.
2. Measuring distance between two stations by indirect ranging when they are obstacles.
3. Measuring of bearing of sides of the traverse and preparation of map.
4. Plating of details by radiation method and intersection method of Plan table surveying methods.
5. Determination of elevation of various points with a level by (a) collimation method (b) rise & fall method.
6. Measurement of horizontal angles with theodolite.
7. Location of points in an area using total station.