ENGINEERING SURVEYING

Course Objectives:

> To introduce the students to basic principles of surveying, various methods of linear and angles measuring instruments and enable the students to use surveying equipment's.

Course Outcomes: upon successful completion of the course, the student will be able:

- 1. To demonstrate the basic surveying skills
- 2. To use various surveying instruments.
- 3. To perform different methods of surveying
- 4. To compute various data required for various methods of surveying.
- 5. To integrate the knowledge and produce topographical map.

UNIT -I

Introduction: Definition-Uses of surveying-overview of plane surveying (chain, compass and plane table), Objectives, Principles and classifications—Errors in survey measurements **Distance & Direction**: Distance Measurement Methods, use of Chain and Tape, Meridians, Azimuths and Bearings, declination, computation of angle.

UNIT-II

Leveling And Contouring: Definitions, Concept and Terminology, Leveling Instruments and their Temporary and permanent adjustments-methods of leveling. Characteristics and Uses of contours-methods of conducting contour surveys.

UNIT - III

Theodolite: Description, principles- uses and adjustments-temporary and permanent, measurement of horizontal and vertical angles. Principles of Electronic Theodolite-Introduction to Trigonometrical leveling,.

Tachometric Surveying: Stadia and tangential methods of Tachometry. Distance and Elevation formulae for Staff vertical position.

UNIT-IV

Curves: Types of curves, design and setting out—simple curves-Introduction to geodetic surveying, Total Station and Global positioning system.

UNIT -V

Computation Of Areas And Volumes: Area from field notes, computation of areas a long 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.

Text Books:

- 1. Surveying, Vol No.1,2&3,B.C.Punmia, Ashok Kumar Jain and Arun Kumar Jain–Laxmi Publications Ltd, NewDelhi.
- 2. Advance Surveying, Satish Gopi, R.Sathi Kumar and N.Madhu, Pearson Publications.
- 3. Text book of Surveying, C.Venkataramaiah, University press, India Limited.
- 4. Surveying and leveling, R.Subramanian, Oxford University press.

References:

- 1. Text book of Surveying, S.K.Duggal (VolNo.1&2), Tata Mc Graw Hill Publishing Co. Ltd. New Delhi.
- 2. Text book of Surveying, Arora (VolNo.1&2), Standard Book House, Delhi.
- 3. Higher Surveying, A.M.Chandra, New Age International Pvt ltd.
- 4. Fundamentals of surveying, S.K.Roy–PHI learning(P)ltd.
- 5. Plane Surveying, Alakde, S. Chand & Company, New Delhi.