



GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

SURVEYING

Course Code: GR15A2006
II Year I Semester

L:3 T:1 P:0 C:4

Prerequisites

- Knowledge of Mathematics

Course objectives

- This subject can provide the knowledge to take measurements between two points which is useful for determining the area or volume of a land
- Determination of elevations can be learnt by using leveling which is a branch of surveying.
- Provides scope for the application of basic knowledge of math's, science as well as civil engineering into surveying.

Course Outcomes

- Ability to apply basic mathematical and science knowledge to understand and solve engineering problems.
- Ability to utilize software tools in G.P.S applications.
- Ability to do specialization in post graduation in the field of quantitative surveying.

Unit-I

Introduction: Definition-Objectives, principals and classification of plane surveying (chain, compass and plane table), types of Compass, Compass survey-meridian, Azimuthal and bearing, declination, computation of angles. Chain-uses of chain and tape, types, testing on chain, chain correction problems, Ranging, Instruments used in Chain Surveying, ODM, Plane table-methods of plane table, principles, errors and precautions.

Unit-II

Leveling : Concepts and technology, Basic Definitions in leveling, temporary and permanent adjustments , calculations of reduced level , problem on radius of curvature, refraction ,HI, reciprocal.

Contouring: Definition, characteristics, methods of contouring and plotting.

Unit-III

Computation of Areas and Volumes: Areas of field notes, computations of areas along irregular boundaries and regular boundaries, embankments and cutting for level section and two level section with and without out transverse slope, volume of borrow pit.



Theodolite survey: Components and their description, uses and adjustments (temporary and permanent), measurement of vertical and horizontal angles, principles of Electronic Digital Theodolite, trigonometric leveling.

Unit-IV

Tacheometric Surveying and Curves: Stadia and tangential methods of tachometry, distance and elevation formulae for staff vertical position.

CURVES- Types of curves, design and setting out simple and compound curves

Unit-V

Advances in Surveying Total Station: Components, Principles and working of Total Station, operational procedure of Total Station, Global Positioning System and introduction to Geographical Information System, applications of G.P.S and Geographical Information System.

Text Books

1. B.C Punmia, Ashok Kumar Jain and Arun Kumar Jain, Surveying (Vol – 1, 2&3), B Laxmi Publications(P) Ltd., New Delhi, 16th Edition 2005.
2. Duggal S K Surveying (Vol – 1&2) Tata Mc. Graw Hill Pvt.Ltd., New Delhi, 4th Edition June 2013.
3. R Subramanian, Surveying and leveling, Oxford University Press, New Delhi, 2nd Edition, Dec 2007.

Reference Books

1. Aryhur R Benton and Philip J Taety, Element of plane surveying Tata Mc. Graw Hill Pvt. Ltd., New Delhi 2000.
2. Aror KR Surveying (Vol – 1, 2&3) standard book house, New Delhi 2004.
3. Chandra AM, "Plane Surveying" New Age International Publications Pvt. Ltd., New Delhi 2002.
4. Chandra AM, "Higher Surveying" New Age International Publications Pvt. Ltd., New Delhi 2002.