

ADVANCED SURVEYING (Professional Elective- I)

Course Code: 15CE1114

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Prerequisites : Surveying, Physics, Mathematics

Course Outcomes:

At the end of the course the student will able to:

- CO 1** Prepare different types of horizontal curves as simple and Compound curves.
- CO 2** Preparation of Reverse and Transition curves.
- CO 3** Study applications and importance of Total station.
- CO 4** Study Photogrammetric surveying.
- CO 5** Apply the importance of GIS and Mapping.

UNIT-I

(10 Lectures)

SIMPLE AND COMPOUND CURVES:

Simple curves – Elements of simple curves – Methods of setting simple curves – Rankin’s method – Two theodolite method– Compound curves – Elements of compound curves

UNIT-II

(10 Lectures)

REVERSE AND TRANSITION CURVES:

Reverse curves – Elements of reverse curve – Determination of various elements of a Transition curves - Setting out methods

UNIT-III

(10 Lectures)

TOTAL STATION:

Introduction to Total station, components used in Total Station surveying, Brief Description of important operations, Applications of Total station, Advantages and Disadvantages.

UNIT-IV**(10 Lectures)****PHOTOGRAMMETRIC SURVEYING:**

Introduction, Basic principles, The photo theodolite, Definitions, Horizontal and Vertical angles from terrestrial photograph, Horizontal position of a point from photographic measurement, Elevation of a point by photographic measurement, Determination of focal length of the lens, Aerial camera, Scale of a vertical photograph, Scale of a tilted photograph, Flight planning for aerial photography, The ground control for photogrammetric, Aerial and close range photogrammetric.

UNIT-V**(10 Lectures)****GIS AND MAPPING:**

Introduction to Geographic Information System (GIS), The four M'S, Contributing Disciplines for GIS, Objectives, components, Data Models, Data Structures, Database Management, Errors in GIS, GIS Software packages, Linkage of GIS to Remote sensing, Application areas of GIS and Remote sensing.

TEXT BOOKS :

1. B.C.Punmia, Ashok Kumar Jain and Arun Kumar Jain “*Surveying*” (Vol – 2&3), 18th Edition, by Laxmi Publications (P) Ltd., New Delhi, 2011.
2. Duggal S K, “*Surveying*” (Vol –2), 10th Edition, Tata McGraw Hill Publishing Co. Ltd. New Delhi, 2004.

REFERENCES:

1. Arthur R Benton and Philip J Taety, “*Elements of Plane Surveying*” 8th Edition, McGraw Hill – 2000, 2010.
2. Arora K R “*Surveying*” (Vol 1, 2 & 3), 9th Edition, Standard Book House, Delhi, 2008.
3. Chandra A M, “*Plane Surveying*”, 4th Edition, New Age International Pvt. Ltd. New Delhi, 2009.