PCI4D001 ADVANCED SURVEYING (4-0-0)
(HONOR)

Module-I

Tacheometry: General principles of stadia system, determination of tacheometric constants, analytic lens, fixed and movable hair methods, inclined sights with staff vertical, inclined sight with staff normal to the line of sight, tangential system, errors in tacheometer. **Curves:** Types of curves, elements of curve, different methods of setting out simple circular curves, compound curves, reverse curves, transition curves, types of transition curves, super elevation, vertical curves.

Module-II

Triangulation: Classification of triangulation system, operation in triangulation survey, reconnaissance, selection of site for base line, its measurement and extension, correction to base line measurement using EDM and Total station, selection of stations, triangulation figures, scaffolds and signals, marking of stations, inter visibility, strength of figures, reduction to centre.
Theory of Errors: Definitions, law of weight, probable errors, most probable value, distribution of error, normal equations, method of least square.

Module-III

Photogrammetric Surveying – Principle, Scale, Number of Photographs, Deduction of distance &height, Elements of Astronomical survey, Solution of problems dealing with celestial triangle.

Module-IV

Setting out of work: Laying out of buildings and sewer lines.
Remote Sensing & GIS-Principles of Remote Sensing & Geographic Information System, Application to Civil Engineering.

Text Books:

1. Surveying &Levelling. Vol-II by T.P.Kanethar&S.V.Kulkarni, Pune VidyarthiGrihaPrakashan
2. Surveying and Leveling by R. Subramanian, Oxford University Press
3. Surveying- Vol.II, by B.C. Punmia, Laxmi Publications

Reference Books:

1. Surveying Vol-1 by R Agor, Khanna Publishers
2. A Textbook of Surveying, C. Venkatramaiah, Universities Press
3. Surveying and Levelling, N.N. Basak, McGraw-Hill Education
4. Remote Sensing and GIS, Basudeb Bhatta, Oxford University Press