

BPLN 202: Surveying and Photogrammetry

INTENT:

- To interpret the booking for field notes
- To apply the fundamental of chain and compass surveying for field survey
- To work out the contour surveying with the help of levelling instrument
- To determine the triangulation with the help of Theodolite
- To define and classify the various types of modern survey
- To provide the concept and application of photogrammetry in urban & regional planning.

COURSE CONTENTS:

Module 1: Fundamentals of Surveying

Definitions, classifications, use, objectives and basic principles of surveying; Classifications of measurements and units, concepts of scales, maps and plan and use of conventional symbols; Stages in surveying works - field works, office works, care and adjustment of the instruments; Errors in surveying - sources and kinds.

Module 2: Chain Surveying and Compass Surveying

Definition, application, advantages and disadvantages, principles; Instruments used, steps in chain survey; Definition of framework of survey, survey lines, survey stations, base line, tie line, check line; Ranging and chaining a survey line, offsets - use and types; Errors and obstacles in chaining; Plotting chain survey to prepare a plan with practical examples.

Definition of compass surveying, traversing, types of traversing, applications, advantages and disadvantages, principles and instruments used in compass surveying; Concept of bearings, meridian and angles, designation of bearing, fore bearing and back bearing, local attraction; Plotting of compass survey data to prepare a plan of a small area.

Module 3: Plain Table Surveying and Computations of Areas

Definition, application, advantages and disadvantages of plane table survey; Instruments used, working operation, methods of plane table survey; Preparation of map of a small area with plane table survey. General methods of determining area; Instrument used and their principles for computing area; Determination of area from the plotted map with different methods and comparing them; Use of Digital Planimeter.

Module 4: Levelling, Contouring & Photogrammetry

Definition, principle, methods and application of levelling; Instruments used and the principles of their work; Concepts of level surface, level line, horizontal plane, horizontal line, vertical line, datum, bench marks; Theory of direct levelling, differential levelling and reduction of levels, classification of levelling and errors in levelling. Definition and application of contouring; Characteristics and interpretation of contour lines; Methods of locating contours;

Photogrammetry as an Alternative Tool for Surveying; Introduction to Aerial Remote Sensing and Aerial Photographs, Classification; Principles of Stereoscopic Vision; Basic instruments Stereo-pair, Pocket and Mirror Stereoscopes, Parallax Bars; Principles of Photogrammetry, Measurement of Heights and Depths; Introduction to Digital Photogrammetry; Introduction to GPS; Introduction to Total Stations; Applications in urban and regional planning; Laboratory Exercises.

References:

1. Aziz, M. A. and Shahjahan, M. A. *Textbook of Surveying*, BUET, Dhaka.
2. Punmia, B. C. *Surveying Vol. 1, 2, 3*, Laxmi Publication, Delhi.
3. Kanetker, T. P. and Kulkawrni S. V. *Surveying and Leveling*; A. V. Griha Publication, Poona, India.
4. Heywood, I. (et. al): *An Introduction to Geographical Information System*
5. Burrough, P. A.: *Principles of Geographical Information System*
6. Curran, P.: *Principles of Remote Sensing*
7. Kennedy, M.: *The Global Positioning System and GIS: An Introduction.*
8. Aziz, M. A. and Shahjahan, M. A. *Textbook of Surveying*, BUET, Dhaka.
9. Punmia, B. C. *Surveying Vol. 1, 2, 3*, Laxmi Publication, Delhi.
10. Kanetker, T. P. and Kulkawrni S. V. *Surveying and Leveling*; A. V. Griha Publication, Poona, India.
11. Heywood, I. (et. al): *An Introduction to Geographical Information System*
12. Burrough, P. A.: *Principles of Geographical Information System*
13. Curran, P.: *Principles of Remote Sensing*
14. Kennedy, M.: *The Global Positioning System and GIS: An Introduction.*