SURVEY CAMP

ENCE 259

Duration: 10 days **Year: II** **Part: II**

Course Objectives:

The objective of the survey camp is to equip students with the practical experience and skills needed to apply their theoretical knowledge of Engineering Surveying in real-world conditions. Through hands-on fieldwork, students will gain exposure to various surveying methods, modern instruments, computational techniques, and best practices for presenting their findings in a professional report. By the end of the course, students will be able to effectively implement surveying techniques to address practical challenges in the field.

1 Establishment of Horizontal Control Points for Large Area (2.5 days)

1.1 Reconnaissance, selection and marking of major traverse and link traverse (Approximately 1.5 km of perimeter, 13-15 control points for major traverse)

1.2 Measurement of two sets included angles and horizontal distances by EDM and bearings of traverse leg by prismatic compass

1.3 Computation of X and Y coordinates of major/minor control stations and elevation of the stations by auto level using correction by Bowditch method at closed circuit

2 Preparation of Topographical Map (3.5 days)

2.1 Selection of suitable site of approximately 3 to 5 hectares of Farm area/ semi built up area with some major and minor control points

2.2 Traversing for densification of control network; GPS and Total Station for detailing; Fly leveling by Auto level for elevation

2.3 Preliminary Works: Selection of suitable area of mapping

2.4 Establishment of additional control points with minimum five control points (except common stations) for link traverse inside/outside the major traverse; Perform three wire precise fly leveling for BM transfer; Computation of coordinates and elevation of the stations from the field observation; Data collection for topographical mapping; Plotting the data for the preparation of topographical map including contours at standard scale using computerized and manual method; Save all digital data in Data saving in data logger (Electronics field book)

3 Weir Axis and Canal Head Work Site Survey (2 days)

3.1 Selection of suitable weir axis and canal head work site area (Approximately 2000m x100m)

3.2 Triangulation networks; Leveling by Auto level for Elevation; GPS and total station for detailing

3.3 Preliminary Works: Selection of Suitable weir and headwork site and establish control points

3.4 Data collection for topographical mapping; Perform leveling and for the plotting of L- section and X section; Computation of coordinates and elevation of the stations from the field observation; Plotting the data for the preparation of topographical map including contours

4 Canal Alignment/ Rural Road and Commanded Area Survey (2 days)

4.1 Selection of length of suitable canal/ road alignment minimum of 500 m and command area of approximately 2 hectares

4.2 Perform open Traverse; Leveling by Auto Level and Leveling Staff for Elevation; Total Station for detailing

4.3 Preliminary works: selection of suitable site and establishment of control points

4.4 Data collection for topographical mapping; Data collection for selection of grades and type of curve where necessary; Perform leveling and for the plotting of L- section and X section; Computation of coordinates and elevation of the stations from the field observation; Plotting the data for the preparation of topographical map including contours at standard scale; Draw L- section and X section of the center line of canal / road alignment; Detailing of command area and plotting using computerized method

Evaluation Criteria

Internal Assessment (50 marks)

Attendance of 10 days weighted 10 marks but if anybody absent more than 3 days' camp should be repeated. Regular evaluation throughout the 10 days: Check and viva for computation and plotting of Major and Minor traverses/ Canal headwork (Weir axis) / Canal alignment/ Rural road/ Commanded area survey and traverse orientation

Final Exam

Standard reports shall be prepared group wise. During compilation of the report, data shall be submitted content wise and all the reference sketches and standard drawings shall be compiled in A3 size and all the original data and drawings shall be presented during final exam. In the final examination there will be viva and instrumentation as per following weightage.

The questions will cover all the chapters in the syllabus. The evaluation scheme will be as indicated in the table below:

Evaluation Method	Marks distribution*	Remarks
Viva / Report Presentation	30	
Instrumentation	20	Should pass individually
Total	**50**	

* There may be minor deviation in marks distribution.