LESSON PLAN -Survey Practice-1 (Pr.1), Batch- 2022-25,Session - 2023-24(SUMMER)

Discipline: Civil Engineering	Semester:4th	Name of the Teaching Faculty: Rupeli kumari patro , GF in Civil GP Kandhamal,Phulbani
Subject: Pr1. LAND SURVEY PRACTICE-1	No. of Days/per week class allotted-07	Semester From Date :16/01/2024 to Date: 26/04/2024 No. of Weeks: 15

Week	Class Day	Theory/Pratical Topics
		1.0 Linear Measurements, Chaining and Chain Surveying:
1st	1st	1.1 Testing and adjusting of a metric chain.
		1.2 Measurement of distance between two points (more than 2 chain lengths apart) with chain including direct ranging.
	2nd	1.3 Setting out different types of triangles, given the lengths of sides with chain and tape.
2nd	1st	1.4 Measurement of distance between two points by chaining across a sloped ground using stepping method and a clinometer.
		1.5 Measurement of distance by chaining across a obstacles on the chain line i) a pond ii)a building iii) a stream/ river (in the event of non-availability of stream / river, a pond or lake may be taken, considering that chaining around the same is not possible.
	2nd	1.6 Setting perpendicular offsets to various objects (at least 3) from a chain line using-(1) tape, (2) cross-staff, (3) optical square and comparing the accuracy of the 3 methods
3rd	1st	1.7 Setting oblique offsets to objects (at least 3) from a chain using tape
		2.0 Angular Measurement and Compass Surveying:
		2.1 Testing and adjustment of Prismatic compass and Surveyor's compass.
	2nd	2.2 Measurement of bearings of lines (at least 3 lines) and determination of included angles using Prismatic compass and Surveyor's compass.
4th	1st	2.3 Setting out triangles (at least 2) with compass, given the length and bearing of one side and included angles.
		2.4 Setting out a closed traverse of 5 sides, using prismatic compass, given bearing of one line and included angles and lengths of sides.
	2nd	2.5 Conducting chain and compass traverse surveying in a given plot of area (2plots) and recording data in the field book. (5 to 6 students/groups)
		3.0 Map Reading Cadastral Maps & Nomenclature:
		3.1 Study of direction, Scale, Grid Reference and Grid Square
5th	1st	3.2 Study of Signs and Symbols
		3.3 Cadastral Map Preparation Methodology
	2nd	3.4 Unique identification number of parcel
6th	1st	3.5 Positions of existing Control Points and its types
		3.6 Adjacent Boundaries and Features, Topology Creation and verification
		4.0 Plane Table Surveying:
	2nd	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
7th	1st	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects)
		4.3 Plane table surveying by Resection method (two point &three point problem method)
		5.0 Theodolite Traversing:
	2nd	5.1 Measurement of horizontal angles (3nos.) by repetition and reiteration method and compare two methods
8th	1st	5.2 Prolonging a given straight line with the help of a theodolite
		5.3 Determination of magnetic bearing of 3 given straight lines Setting out a closed traverse with 6 sides and entering the field data
	2nd	5.4 Plotting the traverse from exercise 4.1 and checking the error of closure
9th	1st	5.5 Setting out an open traverse with 5 sides and entering the field data
		5.6 Plotting the traverse from exercise 4.3 and checking the error of closure
		6.0 Leveling and Contouring:
	2nd	6.1 Making temporary adjustments of Levels
10th	1st	6.2 Determining Reduced Levels of five given points taking staff readings with Levels
		6.3 Determining the difference of levels between two points (3 pairs of points / group) by taking staff readings form single set up of level, recording the readings in level book and application of Arithmetic check. (At least 3 change points must be covered)
	2nd	6.4 Conduct Fly Leveling (Compound) between two distant points with respect to R.L. of a given B.M. and reduction of levels by both height of collimation and rise & fall method and applying Arithmetic check. (At least 3 change points must be covered)
11th	1st	6.5 Conduct profile leveling along the given alignment for a road / canal for 150m length, taking L. S. at every 15m and C. S. at 1m & 3m apart on both sides at every 30m interval and recording the data in level book and applying arithmetical check.
		6.6 Locating contour points in the given area by direct method / indirect method
	2nd	6.7 Conducting block level survey in the given area
12th	1st	6.8 Plotting and drawing contour map of a given area by radial method
		6.9 Map interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making
		7.0 Basics of Aerial Photography:
	2nd	7.1 Film
13th	1st	7.2. Focal Length
		7.3. Scale
	2nd	7.4. Types of Aerial Photographs (Oblique, Straight)
		8.0 Basics of Photogrammetry, DEM and Ortho image generation:
		Photogrammetry:
14th	1st	8.1 Classification of Photogrammetry
		8.2 Aerial Photogrammetry
	2nd	8.3 Terrestrial Photogrammetry

		Photogrammetry Process:
		8.4 Acquisition of Imagery using aerial and satellite platform
15th	1st	8.5 Control Survey
		8.6 Geometric Distortion in Imagery
		8.7 Application of Imagery and its support data
		8.8 Orientation and Triangulation
	2nd	8.9 Stereoscopic Measurement: X-parallax and Y-parallax
		8.10 DTM/DEM Generation
		8.11 Ortho Image Generation