

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Discipline:	Semester: 4 th Sem	Name of the Teaching Faculty Dibyadarini Sahoo
Subject: Land Survey-I	No. of days per week Class Allotted: 6	Semester from Dt. 14/02/22 to Dt. 22/05/22 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1 st week	1 st class	<u>Introduction to Surveying, Linear Measurements:-</u> 1.1 Surveying:- Definition, Aims and Objectives. 1.2 Principles of Survey:- Plane Surveying - Geodetic Surveying - Instrumental Surveying. 1.3 Precision and accuracy of measurements, Instrument used for Measurement of distance Types of chains & tape. 1.4 Errors and mistakes in linear measurements:- Classification, Sources of errors and Remedies.
	2 nd class	
	3 rd class	
	4 th class	
2 nd week	1 st class	1.5 Corrections to Measured lengths due to:- - Incorrect length - Temperature variation - Pull, sag. Numerical Problem applying correction.
	2 nd class	
	3 rd class	
	4 th class	
	5 th class	
		<u>2. Chaining & chain Surveying:-</u> 2.1 Equipments and accessories for chaining. 2.2 Ranging:- Purpose, Signaling, direct and indirect ranging. - Line Ranging features and use. - Error due to incorrect ranging. 2.3 Methods of chaining:- - chaining on flat ground - chaining on sloping ground.

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3 rd week	6 th class	- Stepping Method. - Clinometer - features and use - slope correction.
	1 st class	2.4 Setting Perpendicular with chain & tape
	2 nd class	- chaining across different type of obstacle - Numerical problem on chaining across obstacles.
	3 rd class	2.5 Purpose of chain surveying, its principles
	4 th class	- concept of field book - Selection of survey stations. - base line, tie lines and checklines.
	5 th class	2.6 Offsets:-
4 th week	6 th class	- Necessity of offsets. - Perpendicular and oblique offsets, - Instruments of setting offsets. - Cross staff - Optical square
	7 th class	2.7 Error in chain surveying:-
		- compensating and accumulative errors causes & remedies. - Precautions to be taken during chain surveying.
		3. <u>Angular Measurement & compass Surveying</u>
		3.1 Measurement of angles with
		- chain - Tape and - compass.

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5th week	2nd class	3.2 Compass:- - Types, features, parts - Merits & demerits. - Testing and adjustment of compass.
	3rd class	3.3 Designation of angles:- - concept of Meridians (Magnetic, true arbitrary)
	4th class	- Concept of bearing:- ① Whole circle bearing ② Quadrantal bearing ③ Reduced bearing.
	1st class	- Suitability of application - Numerical problems on conversion of bearings.
	2nd class	3.4 use of compasses:- - Setting in field - centering, levelling taking readings.
	3rd class	- Concepts of fore bearing and back bearing.
	4th class	- Numerical problems on computation of interior & exterior angles from bearing.
	5th class	
6th week	1st class	3.5 Effects of earth's Magnetism:- - dip of needle - Magnetic declination - Variation on declination

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7 th week	2 nd class	3.6 Numerical problems on application of correction of declination.
	3 rd class	3.6 Errors in angles measurement with compass.
	4 th class	3.7 Principles of traversing (open & closed) - Methods of traversing.
	5 th class	3.8 Local attraction!- causes, detection, errors, corrections.
	6 th class	- Numerical problems due to local attraction.
	1 st class	3.9 Errors in compass surveying (Sources & remedies) - Plotting of traverse (check of closed & open traverse).
	2 nd class	- Bowditch's correction, Gales table.
	3 rd class	4. <u>Map Reading</u> <u>Cadastral Maps & Nomenclature</u> .
8 th week	4 th class	4.1 Study of direction, Scale, Grid reference and Grid square.
		4.2 cadastral map preparation Methodology
		4.3 unique identification number of Parcel.
	1 st class	4.4 Positions of existing control points and its types.
	2 nd class	4.5 Adjacent boundaries and features, Topology creation and verification.
	3 rd class	5. <u>Plane Table Surveying</u> !-
	4 th class	5.1 objectives, principles and use of plane table surveying.
		5.2 Instruments & accessories used in Plane table surveying.
	5 th class	5.3 Methods of plane table surveying

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Week	Class Day	Theory / Practical Topics
9th week	1st class	5.4 Statements of two point and three point Problem.
	2nd class	- Errors in plane table surveying and their correction. Precautions in plane table surveying.
	3rd class	6. <u>Theodolite Surveying and traversing</u> :-
	4th class (or)	6.1 Purpose & definition of theodolite surveying.
	5th class	6.2 Transit theodolite:- - Description of features, Component Parts. - Fundamental axes of a theodolite. - concept of vernier, reading a vernier - Temporary adjustment of theodolite.
10th week	1st class	6.3 concept of transiting - - Measurement of horizontal & vertical angles.
	2nd class	6.4 Measurement of magnetic bearings, deflection angle, direct angle, setting out angles.
	3rd class	- Prolonging a straight line with theodolite. - Errors in theodolite observations.
	4th class	6.5 Methods of theodolite traversing with Inclined angle Method, deflection angle Method, bearing Method, Plotting the traverse by coordinate method, check for open & closed traverse.
	5th class	6.6 closing error:- adjustment of angular errors, adjustment of bearings, numerical problems.
	6th class	6.7 Traverse computation:- Consecutive Coordinates, latitude and departure, Craps traverse table. - Numerical problems.
11th week	1st class	6.8 Balancing of traverse:- Bowditch's Method - Transit Method, Graphical Method, axis method. - Calculation of area of closed traverse.