LESSON PLAN (SUMMER-2022)

SUBJECT- LAND SURVEYING-I (Th.3) | **SEMESTER-4th , 2nd YEAR**

FACULTY-SUDHASHREE MUNDA

DATE	NO OF CLASSES	TOPICS TO BE COVERED
CHAPTER-1: INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS		
12.03.2022	1	Surveying: Definition, Aims and objectives
14.03.2022	1	Principles of survey-Plane surveying -Geodetic Surveying- Instrumental surveying.
15.03.2022	1	Precision and accuracy of measurements, instruments used for measurement of distance, Types of tapes and chains.
17.03.2022	2	Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
21.03.2022	1	Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applying corrections.
22.03.2022	1	Revision.
CHAPTER-2: CHAINING AND CHAIN SURVEYING		
24.03.2022	2	Equipment and accessories for chaining
26.03.2022	1	Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.
28.03.2022	1	Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
29.03.2022	1	Setting perpendicular with chain & tape, Chaining across different types of obstacles – Numerical problems on chaining across obstacles.
31.03.2022	2	Purpose of chain surveying, Its Principles, concept of field book. Selection of survey stations, base line, tie lines, Check lines.
02.04.2022	1	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
04.04.2022	1	Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
05.04.2022	1	Revision
CHAPTER-3: ANGULAR MEASUREMENT AND COMPAS SURVEYING		
07.04.2022	2	Measurement of angles with chain, tape & compass .
09.04.2022	1	Compass – Types, features, parts, merits & demerits, testing & adjustment of compass .
11.04.2022	1	Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application, numerical problems on conversion of bearings .
12.04.2022	1	Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing, Numerical problems on computation of interior & exterior angles from bearings.
16.04.2022	1	Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.
18.04.2022	1	Errors in angle measurement with compass – sources & remedies.
19.04.2022	1	Principles of traversing – open & closed traverse, Methods of traversing.
21.04.2022	2	Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
23.04.2022	1	Errors in compass surveying – sources & remedies. Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table .
25.04.2022	1	Revision
26.04.2022	1	Class Test/Internal
CHAPTER-4: MAP READING CADASTRAL MAPS & NOMENCLATURE:		
28.04.2022	2	Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols
30.04.2022	1	Cadastral Map Preparation Methodology
02.05.2022	1	Unique identification number of parcel
05.05.2022	1	Positions of existing Control Points and its types
05.05.2022	1	Adjacent Boundaries and Features, Topology Creation and verification.
07.05.2022	1	Revision
CHAPTER-5: PLANE TABLE SURVEYING		
09.05.2022	1	Objectives, principles and use of plane table surveying.
10.05.2022	1	Instruments & accessories used in plane table surveying.
12.05.2022	1	Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing, (4) Resection.
12.05.2022	1	Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying.
14.05.2022	1.	Revision
CHAPTER-6: THEODOLITE SURVEYING AND TRAVERSING		
17.05.2022	1	Purpose and definition of theodolite surveying
		Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite
19.05.2022	1	Concept of transiting –Measurement of horizontal and vertical angles.

		Measurement of magnetic bearings, deflection angle, direct angle, setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations.
19.05.2022	1	Methods of theodolite traversing with inclined angle method, deflection angle method, bearing method, Plotting the traverse by coordinate method, Checks for open and closed traverse.
21.05.2022	1	Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table, Numerical problems on omitted measurements of lengths & bearings.
23.05.2022	1	Closing error – adjustment of angular errors, adjustment of bearings, numerical problems. Balancing of traverse – Bowditch's method, transit method, graphical method, axis method, calculation of area of closed traverse.
		Revision.
CHAPTER-7: LEVELLING AND CONTOURING		
24.05.2022	1	Definition and Purpose and types of leveling, concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
26.05.2022	1	Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis. Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, C.P. III.
26.05.2022	1	Field data entry – level Book – height of collimation method and Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks.
28.05.2022	1	Effects of curvature and refraction, numerical problems on application of correction.
		Reciprocal leveling – principles, methods, numerical problems, precise leveling.
31.05.2022	1	Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
		Definitions, concepts and characteristics of contours.
02.06.2022	1	Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
02.06.2022	1	Use of contour maps on civil engineering projects – drawing cross sections from contour maps, locating proposal routes of roads / railway / canal on a contour map, computation of volume of earthwork from contour map for simple structure.
04.06.2022	1	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 .
CHAPTER-8: COMPUTATION OF AREA & VOLUME		
06.06.2022	1	Determination of areas, computation of areas from plans.
07.06.2022	1	Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
		Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes.
09.06.2022	2	Revision. Model Test.
TOTAL	**59**	

08/06/22
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