

LESSON PLAN OF LAND SURVEY-I 2023 (S)					
Discipline:civil engineering			Name of The Teaching Faculty:Jyotirmayee Samal		
Subject:Land Survey-I(Th-3)			Semester From Date:-14-02-2023 to -23.05.2023		
SEMESTER-4th			No. Of Weeks:15		5 P/WEEK
No. of Days/week class allotted:04 period per week(Mon,Tues,Wed , Thu,Fri day 1 Period each)					TOTAL PERIOD-75
MO NTH	WEEK	DATE	DAYS /PERIOD	SYLLABUS TO BE COVERED	NOS. OF PERIODS AVAILABLE
				INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS:	7
FEB	3RD	14.2.2023	TUES	1.1 Surveying: Definition, Aims and objectives	1
		15.2.2023	WED	1.2 Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.	1
		16.2.2023	THU	1.3 Precision and accuracy of measurements, instruments used for measurement of distance	1
		17.2.2023	FRI	Types of tapes and chains	1
		20.2.2023	MON	1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies.	1
		21.2.2023	TUES	1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applying corrections.	1
		22.2.2023	WED	Problems	1
		FOURTH			CHAINING AND CHAIN SURVEYING :

		23.2.2023	THU	2.1 Equipment and accessories for chaining	1
		24.2.2023	FRI	2.2 Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.	1
		27.2.2023	MON	2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.	1
	5TH	28.2.2023	TUES	2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles.	1
		01.3.2023	WED	2.5 Purpose of chain surveying, Its Principles, concept of field book. Selection of survey stations, base line, tie lines, Check lines.	1
	FIRST	02.3.2023	THU	2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.	1
		03.3.2023	FRI	2.8 Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.	1
				ANGULAR MEASUREMENT AND COMPAS SURVEYING	12
		06.3.2023	MON	3.1 Measurement of angles with chain, tape & compass	1
	2ND	9.3.2023	THU	3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass	1
		10.3.2023	FRI	3.3 Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application,	1

MAR

THIRD

FOURTH

13.3.2023	MON	Numerical problems on conversion of bearings	1
14.3.2023	TUES	3.4 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. 3	1
15.3.2023	WED	Class test 1	1
16.3.2023	THU	3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.	1
17.3.2023	FRI	3.6 Errors in angle measurement with compass – sources & remedies	1
20.3.2023	MON	3.7 Principles of traversing – open & closed traverse, Methods of traversing.	1
21.3.2023	TUES	3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.	1
22.3.2023	WED	3.9 Errors in compass surveying – sources & remedies. Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table	1
23.3.2023	THU	PROBLEMS	1
		MAP READING CADASTRAL MAPS & NOMENCLATURE:	7
24.3.2023	FRI	4.1 Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols	1
27.3.2023	MON	4.1 Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols	1

FIFTH	28.3.2023	TUES	4.2 Cadastral Map Preparation Methodology	1
	29.3.2023	WED	4.3 Unique identification number of parcel	1
	31.3.2023	FRI	4.4 Positions of existing Control Points and its types	1
SECON D	03.4.2023	MON	4.5 Adjacent Boundaries and Features, Topology Creation and verification.	1
	04.4.2023	TUES	4.5 Adjacent Boundaries and Features, Topology Creation and verification.	1
	CH-5		PLANE TABLE SURVEYING	7
	05.4.2023	WED	5.1 Objectives, principles and use of plane table surveying. .	1
	06.4.2023	THU	5.2 Instruments & accessories used in plane table surveying.	1
3RD	10.04.2023	MON	5.3 Methods of plane table surveying – (1) Radiation, (2) Intersection,	1
	11.4.2023	TUE	5.3 Methods of plane table surveying – (3) Traversing, (4) Resection	1
	12.4.2023	WED	5.4 Statements of TWO POINT and THREE POINT	1
	13.4.2023	THU	Errors in plane table surveying and their corrections,	1
APR	17.4.2023	MON	Class test 2	1
			THEODOLITE SURVEYING AND TRAVERSING	15
	18.4.2023	TUES	6.1 Purpose and definition of theodolite surveying	1
	19.4.2023	WED	6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite	1
	20.4.2023	THU	Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolit	1
	21.4.2023	FRI	6.4 Measurement of magnetic bearings, deflection angle, direct angle	1

FIFTH	24.4.2023	MON	6.5 Methods of theodolite traversing with – inclined angle method, deflection angle method,	1	
	25.4.2023	TUE	Checks for open and closed traverse.	1	
	26.4.2023	WED	Methods of theodolite traversing with bearing method, Plotting the traverse by coordinate method,	1	
	27.4.2023	THU	6.6 Traverse computation – consecutive coordinates, latitude and departure	1	
	28.4.2023	FRI	6.7 Closing error – adjustment of angular errors, adjustment of bearings, numerical problems	1	
MAY	FIRST	01.5.2023	MON	Gale’s traverse table, Numerical problems on omitted measurement of lengths & bearings	1
		02.5.2023	TUE	6.8 Balancing of traverse – Bowditch’s method, calculation of area of closed traverse.	1
		3.5.2023	MON	Transit method, Axis method, calculation of area of closed traverse. Problems	1
		4.5.2023	THU	Transit method, Axis method, calculation of area of closed traverse. Problems	1
	2ND	8.5.2023	MON	calculation of area of closed traverse. Problems	1
		9.5.2023	TUES	class test 3	1
				LEVELLING AND CONTOURING	15
		10.5.2023	WED	7.1 Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M	1
		11.5.2023	THU	7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.	1
		12.5.2023	FRI	7.3 Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI.	1
		15.5.2023	MON	7.4 Field data entry – level Book – height of collimation method and Rise & Fall method, comparison	1

		16.5.2023	TUE	Numerical problems on reduction of levels applying both methods, Arithmetic checks.	1
	3RD	17.5.2023	WED	7.5 Effects of curvature and refraction, numerical problems on application of correction.	
		18.5.2023	THU	7.6 Reciprocal leveling – principles, methods, numerical problems, precise leveling.	
	4TH	22.5.2023	MON	7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.	
		23.5.2023	TUES	7.8 Definitions, concepts and characteristics of contours.	
				7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.	
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				7.10 Use of contour maps on civil engineering projects – drawing crosssections 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.	
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			EXTRA CLASS	7.11 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	15P

		COMPUTATION OF AREA & VOLUME(5P)
		8.1 Determination of areas, computation of areas from
		8.2 Calculation of area by using ordinate rule
		Calculation of area by using trapezoidal rule, Simpson's rule.
		8.3 Calculation of volumes by Prismoidal corrections, curvature correction for volumes.
		8.3 Calculation of volumes by trapezoidal formula, curvature correction for volumes.