

LESSON PLAN FOR SUMMER 2023

DISCIPLINE:- CIVIL ENGG.	SEMESTER:-4TH SEM SEC A	NAME OF THE TEACHING FACULTY:-LAXMIPRIYA SWAIN (PTGF)
SUBJECT:-LAND SURVEY-I ,(TH.3)	NO. OF DAYS/PER WEEK CLASS ALLOTTED:- 5T	SEMESTER - 4TH Sem SEC A FROM DATE-10/03/2022 TO DATE- 10/06/2022 OF WEEKS-15WEEKS
WEEK	CLASS DAY	THEORY TOPICS
		CHAPTER-1 INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS:(7P)
1ST WEEK	1ST	1.1 Surveying: Definition, Aims and objectives Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.
	2nd	1.2 1.3 Precision and accuracy of measurements Instruments used for measurement of distanceTypes of tapes and chains
	3rd	1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
2ND WEEK	1ST	1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag .Numerical problem applying corrections.
		CHAPTER-2 CHAINING AND CHAIN SURVEYING :(7P)
	2nd	2.1 Equipment and accessories for chaining Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging
	3rd	2.2 2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
3RD WEEK	1ST	2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles. 2.5 Purpose of chain surveying, Its Principles, concept of field book.Selection of survey stations, base line, tie lines, Check lines.
	2nd	2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square. 2.8 Errors in chain surveying – compensating and accumulative errors causes &remedies, Precautions to be taken during chain surveying
		CHAPTER-3 ANGULAR MEASUREMENT AND COMPAS SURVEYING :(12P)
	3rd	3.1 Measurement of angles with chain, tape & compass
	1ST	3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass 3.3 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
4TH WEEK	3rd	Numerical problems on conversion of bearings
5TH WEEK	1ST	3.4 Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing, Numerical problems on computationof interior & exterior angles from bearings.

5TH WEEK	2nd	3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination. Numerical problems on application of correction for declination.
	3rd	3.6 Errors in angle measurement with compass – sources & remedies.
6TH WEEK	1ST	3.7 Principles of traversing – open & closed traverse, Methods of traversing. 3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
	2nd	3.9 Errors in compass surveying – sources & remedies. Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table
		CHAPTER-4 MAP READINGS CADASTRAL MAPS & NOMENCLATURE(7P) 4.1 Study of direction, Scale,
	3rd	Grid Reference and Grid Square Study of Signs and Symbols 4.2 Cadastral Map Preparation Methodology
7TH WEEK	1ST	4.3 Unique identification number of parcel
	2nd	4.4 Positions of existing Control Points and its types
	3rd	4.5 Adjacent Boundaries and Features Topology Creation and verification.
		CHAPTER-5 PLANE TABLE SURVEYING(7P)
8TH WEEK	1ST	5.1 Objectives, principles and use of plane table 5.2 Instruments & accessories used in plane table surveying surveying.
	2nd	5.3 Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing (4) Resection
9TH WEEK	1ST	5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying.
	2nd	5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying.
		CHAPTER-6 THEODOLITE SURVEYING AND TRAVERSING(15P) 6.1 Purpose and definition of theodolite surveying,
10TH WEEK	1ST	6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite.
	2nd	6.3 Concept of transiting – Measurement of horizontal and vertical angles. 6.4 Measurement of magnetic bearings, deflection angle, direct angle, Setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations
		3rd
11TH WEEK	1ST	6.5 Plotting the traverse by coordinate method, angle method, bearing method, Checks for open and closed traverse.
	2nd	6.6 Traverse computation – consecutive coordinates Latitude and departure, Gale's traverse table Numerical problems on omitted measurement of lengths & bearings

11TH WEEK	3rd	6.7 Closing error – adjustment of angular errors, adjustment of bearings numerical problems
12TH WEEK	1ST	6.8 Balancing of traverse – Bowditch's method, transit method ,Graphical method, axis method.
	2nd	6.8 Calculation of area of closed traverse. NUMERICAL PROBLEMS
CHAPTER-7 LEVELLING AND CONTOURING(15P)		
13TH WEEK	1ST	7.1 Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
	2nd	7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.
	3rd	7.3 Levelling staff – Temporary adjustments of level, taking reading with level,concept of bench mark, BS, IS, FS, CP, HI. 7.4 Field data entry – level Book – height of collimation method
14TH WEEK	1ST	7.4 Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks.
	2nd	7.5 Effects of curvature and refraction, numerical problems on application of correction. 7.6 Reciprocal leveling – principles, methods
15TH WEEK	1ST	7.6 Numerical problems, precise leveling. 7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
	2nd	7.8 Definitions, concepts and characteristics of contours. 7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
EXTRA CLASSES REQUIRED		7.10 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.
		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
		CHAPTER-8 COMPUTATION OF AREA & VOLUME:(5P)
		8.1 Determination of areas, computation of areas from plans.
		8.2 Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
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		8.3 Calculation of volumes by prismoidal formula and trapezoidal formula,Prismoidal corrections, curvature correction for volumes. 8.3 Calculation of volumes by prismoidal formula and trapezoidal formula,Prismoidal corrections, curvature correction for volumes.

LaxmiPriya Swain
SIGNATURE OF THE FACULTY