

LESSON PLAN FOR SUMMER 2022

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	SEMESTER - 4TH Sem SEC A FROM DATE-10/03/2022 TO DATE- 10/06/2022 NO. OF WEEKS 14WEEKS
WEEK	DATE	CLASS DAY	THEORY TOPICS
			CHAPTER-1 INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS:(7P)
1st WEEK	3/11/2022	3rd	1.1 Surveying: Definition, Aims and objectives
	3/12/2022	4th	1.2 Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.
2nd WEEK	3/14/2022	1st	1.3 Precision and accuracy of measurements Instruments used for measurement of distance
	3/16/2022	2nd	1.3 Types of tapes and chains 1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
3rd WEEK	3/21/2022	1st	1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag Numerical problem applying corrections.
	3/23/2022	2nd	CHAPTER-2 CHAINING AND CHAIN SURVEYING :(7P) 2.1 Equipment and accessories for chaining
	3/25/2022	3rd	2.2 Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging
	3/26/2022	4th	2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
4th WEEK	3/29/2022	1st	2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles.
	3/31/2022	2nd	2.5 Purpose of chain surveying, Its Principles, concept of field book.Selection of survey stations, base line, tie lines, Check lines. 2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical
	4/2/2022	4th	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)
5th WEEK	4/4/2022	1st	3.1 Measurement of angles with chain, tape & compass 3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
	4/6/2022	2nd	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

5th WEEK	4/8/2022	3rd	Numerical problems on conversion of bearings 3.4 Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing,
	4/9/2022	4th	Numerical problems on computation of interior & exterior angles from bearings.
6th WEEK	4/11/2022	1st	3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination.
	4/13/2022	2nd	Numerical problems on application of correction for declination. 3.6 Errors in angle measurement with compass – sources & remedies.
	4/16/2022	4th	3.7 Principles of traversing – open & closed traverse, Methods of traversing.
7th WEEK	4/18/2022	1st	3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
	4/20/2022	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)
	4/22/2022	3rd	4.1 Study of direction, Scale,
	4/23/2022	4th	Grid Reference and Grid Square Study of Signs and Symbols 4.2 Cadastral Map Preparation Methodology
8th WEEK	4/25/2022	1st	4.3 Unique identification number of parcel
	4/27/2022	2nd	4.4 Positions of existing Control Points and its types
	4/29/2022	3rd	4.5 Adjacent Boundaries and Features
	4/30/2022	4th	Topology Creation and verification.
			CHAPTER-5 PLANE TABLE SURVEYING(7P)
9th WEEK	5/2/2022	1st	5.1 Objectives, principles and use of plane table surveying.
	5/4/2022	2nd	5.2 Instruments & accessories used in plane table surveying 5.3 Methods of plane table surveying – (1)
	5/6/2022	3rd	5.3 Methods of plane table surveying - (2) Intersection, (3) Traversing (4) Resection
	5/7/2022	4th	5.3 Methods of plane table surveying - (2) Intersection, (3) Traversing (4) Resection
10th WEEK	5/9/2022	1st	5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying.
	5/11/2022	2nd	5.4 Statements of TWO POINT and THREE POINT PROBLEM. CHAPTER-6 THEODOLITE SURVEYING AND TRAVERSING(15P) 6.1 Purpose and definition of theodolite
	5/13/2022	3rd	6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of
	5/14/2022	4th	6.3 Concept of transiting – Measurement of horizontal and vertical angles.

11th WEEK	5/18/2022	2nd	6.4 Measurement of magnetic bearings, deflection angle, direct angle, Setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations
	5/20/2022	3rd	6.5 Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method 6.5 Plotting the traverse by coordinate method, angle method, bearing method, Checks for open and closed traverse.
	5/21/2022	4th	6.6 Traverse computation – consecutive coordinates
12th WEEK	5/23/2022	1st	6.6 Latitude and departure, Gale's traverse table
	5/25/2022	2nd	6.6 Numerical problems on omitted measurement of lengths & bearings
	5/27/2022	3rd	6.7 Closing error – adjustment of angular errors, adjustment of bearings numerical problems 6.8 Balancing of traverse – Bowditch's method, transit method
	5/28/2022	4th	6.8 Graphical method, axis method.
13th WEEK	6/1/2022	2nd	6.8 Calculation of area of closed traverse.
	6/3/2022	3rd	NUMERICAL PROBLEMS
			CHAPTER-7 LEVELLING AND CONTOURING(15P)
	6/4/2022	4th	7.1 Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
14th WEEK	6/6/2022	1st	7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.
	6/8/2022	2nd	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
	6/10/2022	3rd	7.4 Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks.
			7.5 Effects of curvature and refraction, numerical problems on application of correction.
			7.6 Reciprocal leveling – principles, methods
			7.6 Numerical problems, precise leveling.
			7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
			7.8 Definitions, concepts and characteristics of contours.
			7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
			7.10 Use of contour maps on civil engineering projects – drawing cross sections from contour maps
			7.10 Locating proposal routes of roads / railway / canal on a contour map, computation of volume of earthwork from contour map for simple structure.

**EXTRA CLASSES
REQUIRED**

		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.
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