

GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING, BERHAMPUR				
DEPARTMENT OF CIVIL ENGINEERING				
LESSON PLAN				
DISCIPLINE: CE		ACADEMIC SESSION: 2023-24		
SEMESTER: 4 TH		FROM DATE : 02-01-2024	TO DATE: 30-04-2024	
NAME OF THE TEACHING FACULTY:NIRALI DAS				
SUBJECT CODE: TH-4			SUBJECT: LAND SURVEY – I	
NO.OF PERIOD/PER WEEK CLASS ALLOTTED: 5				
TOTAL NO. OF CLASS AVAILABLE IN SEM: 75				
SL NO.	WEEK	CLASS DATE	NO. OF CLASS / DAY	TOPICS
1	Week-01	02-01-2024	1	Surveying: Definition, Aims and objectives
		03-01-2024	1	Principles of survey-Plane surveying
		04-01-2024	1	Geodetic Surveying- Instrumental surveying
		05-01-2024	1	Precision and accuracy of measurements, instruments used for measurement of distance,
		06-01-2024	1	Types of tapes and chains.
2	Week-02	09-01-2024	1	Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
		10-01-2024	1	Equipment and accessories for chaining
		11-01-2024	1	Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.
		12-01-2024	1	Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
3	Week-03	16-01-2024	1	Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles
		17-01-2024	1	Purpose of chain surveying, Its Principles, concept of field book. Selection of survey stations, base line, tie lines, Check lines.
		18-01-2024	1	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
		19-01-2024	1	Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
		20-01-2024	1	Doubt Clearance
4	Week-04	24-01-2024	1	Measurement of angles with chain, tape & compass
		25-01-2024	1	Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
5	Week-05	30-01-2024	1	Designation of angles- concept of meridians – Magnetic, True, arbitrary;
		31-01-2024	1	Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application, of bearings
		01-02-2024	1	Numerical problems on conversion
		02-02-2024	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.
		03-02-2024	1	5 Effects of earth’s magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.
6	Week-06	06-02-2024	1	Doubt Clearance
		07-02-2024	1	Errors in angle measurement with compass – sources & remedies.
		08-02-2024	1	Principles of traversing – open & closed traverse, Methods of traversing.
		09-02-2024	1	Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
7	Week-07	13-02-2024	1	Errors in compass surveying – sources & remedies.
		15-02-2024	1	Plotting of traverse – check of closing error in closed & open traverse, Bowditch’s correction, Gales table
		16-02-2024	1	Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols
		17-02-2024	1	Cadastral Map Preparation Methodology

8	Week-08	20-02-2024	1	Unique identification number of parcel
		21-02-2024	1	Positions of existing Control Points and its types
		22-02-2024	1	Adjacent Boundaries and Features, Topology Creation and verification.
		23-02-2024	1	Doubt Clearance
9	Week-09	27-02-2024	1	Objectives, principles and use of plane table surveying.
		28-02-2024	1	Instruments & accessories used in plane table surveying
		29-02-2024	1	Methods of plane table surveying – Radiation,
		01-03-2024	1	Methods of plane table surveying – Intersection, Traversing.
		02-03-2024	1	Methods of plane table surveying – Resection. Doubt clearance
10	Week-10	06-03-2024	1	Statements of TWO POINT and THREE POINT PROBLEM.
		07-03-2024	1	Errors in plane table surveying and their corrections, precautions in plane table surveying
11	Week-11	12-03-2024	1	Purpose and definition of theodolite surveying
		13-03-2024	1	Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite,
		14-03-2024	1	concept of vernier, reading a vernier, Temporary adjustment of theodolite
		15-03-2024	1	Concept of transiting –Measurement of horizontal and vertical angles.
11	Week-11	16-03-2024	1	Measurement of magnetic bearings, deflection angle, direct angle, setting out angles,
12	Week-12	19-03-2024	1	prolonging a straight line with theodolite, Errors in Theodolite observations.
		20-03-2024	1	Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method,
		21-03-2024	1	Plotting the traverse by coordinate method, Checks for open and closed traverse.
		22-03-2024	1	Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table,
13	Week-13	27-03-2024	1	Numerical problems on omitted measurement of lengths & bearings
		28-03-2024	1	Closing error – adjustment of angular errors, adjustment of bearings, numerical problems
		30-03-2024	1	Solve Numericals on above topic
14	Week-14	02-04-2024	1	Balancing of traverse – Bowditch's method, transit method
		03-04-2024	1	Balancing of traverse – graphical method, axis method.
		04-04-2024	1	Calculation of area of closed traverse.
		05-04-2024	1	Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
		06-04-2024	1	Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.
15	Week-15	09-04-2024	1	Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI
		10-04-2024	1	Field data entry – level Book – height of collimation method and Rise & Fall method, comparison,
		12-04-2024	1	Numerical problems on reduction of levels applying both methods, Arithmetic checks.
16	Week-16	16-04-2024	1	Effects of curvature and refraction, numerical problems on application of correction.
		18-04-2024	1	Reciprocal leveling – principles, methods, numerical problems, precise leveling.
		19-04-2024	1	Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
		20-04-2024	1	Definitions, concepts and characteristics of contours.
17	Week-17	22-04-2024	1	Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
		23-04-2024	1	Use of contour maps on civil engineering projects – drawing crosssections from contour maps, locating proposal routes of roads
		24-04-2024	1	Use of contour maps on civil engineering projects – drawing crosssections from contour maps, locating proposal routes of railway /canal on a contour map.
		25-04-2024	1	Computation of volume of earthwork from contour map for simple structure.
		26-04-2024	1	Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.),
		26-04-2024	1	Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making

18	Week-18	27-04-2024	1	Determination of areas, computation of areas from plans
		27-04-2024	1	Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
		29-04-2024	1	Solve Numericals on above topic
		29-04-2024	1	Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes.
		30-04-2024	1	Solve Numericals on above topic

*** The above lesson plan prepared by the concerned faculty.

Er.
LECTURER,
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