KIIT POLYTECHNIC, BHUBANESWAR
LESSON PLAN
Session (2023-2024)

Discipline Civil Engg.	Semester: 4th sem. Summer/2024	Name of the Teaching Faculty: Suchismita Padhi(Lecturer) Email ID: Suchismita.padhifce@kp.kiit.ac.in
Subject: Land survey-I (Th.3)	Nos of days per week class allotted: 05	Start Date :16/01/24 End Date:26/04/24

Week	Class day	Theory topics
1st	1ST	Defination aims and objectives of surveying
	2ND	Principles of survey-Plane surveying-GeodeticSurveying- Instrumental surveying.
	3RD	Precision and accuracy of measurements, instrumentsused for measurement of distance,
	4th	Types of tapes and chains.
	5th	Errors and mistakes in linear measurement –classification, Sources of errors and remedies.
2nd	1ST	Corrections to measured lengths due to-incorrect length,temperature variation, pull, sag,
	2ND	numerical problem applying corrections
	3RD	**CHAINING AND CHAIN SURVEYING :** Equipment and accessories for chaining
	4TH	Ranging – Purpose, signaling, direct and indirect ranging,Line ranger – features and use, error due to incorrect ranging.
	5TH	Methods of chaining –Chaining on flat ground, Chainingon sloping ground – stepping method, Clinometer-features and use, slope correction
3rd	1ST	Setting perpendicular with chain & tape,

	2ND	Chaining across different types ofobstacles –
	3rd	Numerical problems on chaining across obstacles
	4th	Purpose of chain surveying, Its Principles, concept of fieldbook
	5th	Selection of survey stations, base line, tie lines, Check Lines
4th	1ST	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
	2ND	Errors in chain surveying – compensating andaccumulative errors causes &

		remedies, Precautions to be taken during chainsurveying.
	3RD	**ANGULAR MEASUREMENT AND COMPASSURVEYING :** Measurement of angles with chain,
	4TH	Measurement of angles tape & compass
	5TH	Compass – Types, features, parts, merits & demerits,testing & adjustment of compass
5th	1ST	Designation of angles- concept of meridians – Magnetic,True, arbitrary; Concept of bearings
	2ND	Whole circle bearing, Quadrantal bearing, Reducedbearing, suitability of application
	3RD	Quiz Test
	4TH	Use of compasses – setting in field-centering, leveling,taking readings, concepts of Fore bearing, Back Bearing
	5TH	Numerical problems on computation of interior & exterior angles from bearings.
6th	1ST	Effects of earth's magnetism – dip of needle
	2ND	magnetic declination, variation in declination, numerical problems on application ofcorrection for declination.
	3RD	Errors in angle measurement with compass – sources &remedies.
	4TH	Principles of traversing – open & closed traverse

	5TH	Local attraction – causes, detection, errors, corrections
7th	1ST	Numerical problems of application of correction due to local attraction.
	2ND	Errors in compass surveying – sources & remedies
	3RD	Plotting of traverse – check of closing error in closed &open traverse,
	4th	Bowditch's correction, Gales table
	5th	**MAP READING CADASTRAL MAPS &NOMENCLATURE:** Study of direction, Scale,
8th	1ST	Grid Reference and Grid SquareStudy of Signs and Symbols
	2ND	Cadastral Map Preparation Methodology

	3RD	Positions of existing Control Points and its types
	4TH	Adjacent Boundaries and Features, Topology Creationand verification
	5TH	**PLANE TABLE SURVEYING :** Objectives, principles and use of plane tablesurveying
9th	1ST	Instruments & accessories used in plane table surveying.
	2ND	Methods of plane table surveying
	3RD	Statements of TWO POINT and THREE POINTPROBLEM.
	4TH	Errors in plane table surveying and their corrections,precautions in Plane table surveying
	5th	Quiz test
10th	1ST	**THEODOLITE SURVEYING AND TRAVERSING:** Purpose and definition of theodolite surveying
	2ND	Transit theodolite- Description of features, componentparts
	3RD	Concept of transiting –Measurement horizontal and vertical angles

	4th	Measurement of magnetic bearings, deflection angle,direct angle
	5th	Quiz Test
11th	1ST	Methods of theodolite traversing with – inclined anglemethod, deflection angle method, bearing method,
	2ND	Checks for open and closed traverse.
	3RD	Traverse computation – consecutive coordinates, latitudeand departure, Gale's traverse table, Numerical problems on omittedmeasurement of lengths & Bearings
	4TH	Closing error – adjustment of angular errors, adjustmentof bearings, numerical problems
	5TH	Balancing of traverse – Bowditch's method
12th	1ST	transit method, graphical method, axis method, calculation of area of closedtraverse
	2ND	**LEVELLING AND CONTOURING :** Definition and Purpose and types of leveling–concepts of level surface,
	3RD	Horizontal surface, vertical surface, datum, R. L., B.M
	4TH	Instruments used for leveling, concepts of line ofcollimation, axis of bubble tube, axis of telescope, Vertical axis.
	5TH	Levelling staff – Temporary adjustments of level, taking

		reading with level,concept of bench mark, BS, IS, FS, CP, HI
13th	1ST	height of collimation method and Rise and fall method, comparison, Numerical problems on reduction oflevels applying both methods, Arithmetic checks.
	2ND	Effects of curvature and refraction numerical problems onapplication of correction.
	3RD	Reciprocal levelling
	4th	Errors in leveling and precautions, Permanent andtemporary adjustments of different types of levels.
	5th	Quiz test
14th	1ST	Definitions, concepts and characteristics of contours
	2ND	Methods of contouring, plotting contour maps,Interpretation of contour maps,

	3RD	Use of contour maps on civil engineering projects
	4TH	Map Interpretation: Interpret Human and EconomicActivities (i.e.: Settlement, Communication, Land use etc
	5TH	Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving andDecision Making
15th	1ST	**COMPUTATION OF AREA & VOLUME:** Determination of areas, computation of areas fromplans.
	2ND	Calculation of area by using ordinate rule, trapezoidalrule, Simpson's rule.
	3RD	Calculation of volumes by prismoidal formula andtrapezoidal formula
	4TH	Revision
	5TH	Revision and previous year question discussion.