

LESSON PLAN OF 4TH SEMESTER CIVIL ENGINEERING(2023-24)		
Discipline: CE	Semester:-4 TH	Name of the Teaching Faculty- JYOTIRMAYEE MUNI
Subject:- LAND SURVEY-I	No of Days/per Week Class Allotted :-05	No. of Weeks : 20
Week	Class Day	Theory/ Practical Topics
1 st	1 st	INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS: Surveying: Definition, Aims and objectives
	2 nd	Principles of survey-Plane surveying- Geodetic Surveying- Instrumental
	3 rd	Precision and accuracy of measurements, instruments used for measurement of distance
	4 th	Types of tapes and chains
	5 th	Errors and mistakes in linear measurement – classification
2 nd	1 st	Sources of errors and remedies.
	2 nd	Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag
	3 rd	numerical problem applying corrections
	4 th	CHAINING AND CHAIN SURVEYING : Equipment and accessories for chaining
	5 th	Ranging – Purpose, signalling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging
3 rd	1 st	Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction
	2 nd	Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles
	3 rd	Purpose of chain surveying, Its Principles, concept of field book. Selection of survey stations, base line, tie lines, Check lines
	4 th	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
	5 th	Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
4 th	1 st	ANGULAR MEASUREMENT AND COMPAS SURVEYING : Measurement of angles with chain, tape & compass
	2 nd	Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
	3 rd	Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application

	4th	numerical problems on conversion of bearings
	5th	Use of compasses – setting in field-centering, leveling, taking readings, concepts of Fore bearing, Back Bearing
5th	1st	Numerical problems on computation of interior & exterior angles from bearings.
	2nd	Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination
	3rd	Numerical problems on application of correction for declination.
6th	1st	Local attraction – causes, detection, errors, corrections
	2nd	Numerical problems of application of correction due to local attraction.
	3rd	Errors in compass surveying – sources & remedies
	4th	Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table
	5th	MAP READING CADASTRAL MAPS & NOMENCLATURE: Study of direction, Scale, Grid Reference
7th	1st	Grid Square Study of Signs and Symbols
	2nd	Cadastral Map Preparation Methodology
	3rd	Unique identification number of parcel
	4th	Positions of existing Control Points and its types
	5th	4.5 Adjacent Boundaries and Features, Topology Creation and verification.
8th	1st	PLANE TABLE SURVEYING : Objectives, principles and use of plane table surveying.
	2nd	Instruments & accessories used in plane table surveying.
	3rd	Methods of plane table surveying – (1) Radiation, (2) Intersection
	4th	(3) Traversing, (4) Resection.
	5th	Statements of TWO POINT and THREE POINT PROBLEM.
9th	1st	Errors in plane table surveying and their corrections, precautions in plane table surveying.
	2nd	THEODOLITE SURVEYING AND TRAVERSING: Purpose and definition of theodolite surveying
	3rd	Transit theodolite- Description of features, component parts,
	4th	Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite
	5th	Concept of transiting – Measurement of horizontal and vertical angles
10th	1st	Measurement of magnetic bearings, deflection angle, direct angle, setting out angles
	2nd	Prolonging a straight line with theodolite, Errors in Theodolite observations.
	3rd	Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method

11 th	4 th	Plotting the traverse by coordinate method, Checks for open and closed traverse
	5 th	Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table
	1 st	Numerical problems on omitted measurement of lengths & bearings
	2 nd	Closing error – adjustment of angular errors, adjustment of bearings
	3 rd	numerical problems
	4 th	Balancing of traverse – Bowditch's method, transit method, graphical method, axis method, calculation of area of closed traverse.
12 th	5 th	NUMERICAL PROBLEM SOLVING
	1 st	LEVELLING AND CONTOURING : Definition and Purpose and types of leveling
	2 nd	concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
	3 rd	Instruments used for leveling
	4 th	concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis
	5 th	Leveling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI.
13 th	1 st	Field data entry – level Book – height of collimation method and Rise & Fall method, comparison
	2 nd	Numerical problems on reduction of levels applying both methods, Arithmetic checks
	3 rd	Effects of curvature and refraction, numerical problems on application of correction.
	4 th	Reciprocal leveling – principles, methods, numerical problems, precise leveling.
	5 th	Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
14 th	1 st	Definitions, concepts and characteristics of contours
	2 nd	Methods of contouring, plotting contour maps, Interpretation of contour maps, top sheets
	3 rd	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
	4 th	Computation of volume of earthwork from contour map for simple structure.
	5 th	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
15 th	1 st	COMPUTATION OF AREA & VOLUME: Determination of areas, computation of areas from plans.
	2 nd	Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule
	3 rd	Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes.

	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	PREVIOUS YEAR QUESTIONS PRACTICE
16th	1st	Necessity of spillway
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
17th	1st	Necessity of spillway
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
18th	1st	Necessity of spillway
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
19th	1st	Necessity of spillway
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS
20th	1st	Necessity of spillway
	2nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4th	PREVIOUS YEAR QUESTIONS PRACTICE
	5th	DOUBT CLEARING CLASS


 Principal
 Orissa School of Engineering
 Berhampur (Gm.)

Jyoti Himayee Mani


 H.O.D. Civil Dept.
 O.S.E., Berhampur