

PNS SCHOOL OF ENGINEERING & TECHNOLOGY

LESSON PLAN

BRANCH-CIVIL	SEMESTER-4TH	NAME OF THE FACULTY-MADHUSMITA NAYAK
SUBJECT- SURVEY-1	NO OF DAYS PER WEEK -6 CLASS ALLOTTED-75	SEMESTER FROM 13.02.2023 TO 24.05.2023
WEEK	CLASS DAY	THEORY TOPIC
FEBRUARY-3RD	1ST	Introduction Surveying: Definition, Aims and objectives. Principles of surveying- geodetic surveying- instrumental surveying.
	2ND	Precision and accuracy of measurements, instruments used for measurements of distance, Types of tapes and chains.
	3RD	Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
	4TH	Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applying corrections.
	5TH	CHAINING AND CHAIN SURVEYING : Equipment and accessories for chaining Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.
4TH	6TH	Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
	1ST	Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles.
	2ND	Purpose of chain surveying, Its Principles, concept of field book. Selection of survey stations, base line, tie lines, Check lines.
	3RD	Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
	4TH	Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying.
5TH	5TH	ANGULAR MEASUREMENT AND COMPAS SURVEYING : Measurement of angles with chain, tape & compass.
	6th	Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
	1st	CONTINUING...
	2nd	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
	3rd	Continuing...

MARCH -1ST	4th	Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination.
	5th	Errors in angle measurement with compass – sources & remedies.
	6th	Principles of traversing – open & closed traverse, Methods of traversing.
	1st	Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
2ND	2nd	Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
	3rd	MAP READING CADASTRAL MAPS & NOMENCLATURE: Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols.
	4th	Continuing...
3RD	5th	Cadastral Map Preparation Methodology.
	6th	Unique identification number of parcel.
	1st	Positions of existing Control Points and its types. Adjacent Boundaries and Features, Topology Creation and verification.
	2nd	PLANE TABLE SURVEYING : Objectives, principles and use of plane table surveying. Instruments & accessories used in plane table surveying.
	3rd	Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing, (4) Resection.
	4th	Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying
	5th	THEODOLITE SURVEYING AND TRAVERSING: Purpose and definition of theodolite surveying
4TH	3rd	Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite
	4th	Concept of transiting –Measurement of horizontal and vertical angles Measurement of magnetic bearings, deflection angle
	5th	direct angle, setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations.
	6th	Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method, Plotting the traverse by coordinate method, Checks for open and closed traverse.

	1st	Traverse computation – consecutive coordinates, latitude and departure, Gale’s traverse table
5TH	2nd	Numerical problems on omitted measurement of lengths & bearings
	3rd	Problems Solving....
	4th	Closing error – adjustment of angular errors, adjustment of bearings, numerical problems
	5TH	Continuing...
APRIL-2ND	6th	Balancing of traverse – Bowditch’s method, transit method, graphical method, axis method, calculation of area of closed traverse.
	1st	LEVELLING AND CONTOURING : Definition and Purpose and types of leveling– concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
	2nd	Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis. 7.3 Levelling staff – Temporary adjustments of level,
	3rd	taking reading with level, concept of bench mark, BS, IS, FS, CP, HI.
	4th	Field data entry – level Book – height of collimation method and Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks
3RD	5th	Effects of curvature and refraction, numerical problems on application of correction
	6th	Reciprocal leveling – principles, methods, numerical problems, precise leveling.
	4th	Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
	5th	Definitions, concepts and characteristics of contours. 7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets
	6TH	Use of contour maps on civil engineering projects – drawing crosssections 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.
	1ST	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

4TH	2ND	COMPUTATION OF AREA & VOLUME: 8.1 Determination of areas, computation of areas from plans.
	3RD	Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
	4TH	Simpson's rule.
	5TH	Calculation of volumes by prismoidal formula .
5TH	1ST	trapezoidal formula,
	2ND	Prismoidal corrections, curvature correction for volumes.
	3RD	Continuing... (neumaric problem solution){
	4TH	CONTINUEING (neumaric problem solution){
	5TH	Continuing... (neumaric problem solution){
	6TH	Continuing... (neumaric problem solution){
MAY-1ST	1ST	Continuing... (neumaric problem solution){
	2ND	Continuing... (neumaric problem solution){
	3RD	Continuing...rivising
	4TH	Continuing...
	6TH	Doubt clearing class
2ND	1ST	Doubt clearing class
	2ND	Doubt clearing class
	3RD	Doubt clearing class
	4TH	Doubt clearing class
	5TH	note cheacking
	6TH	note cheacking
3RD	1ST	important questions solutiouons claqss
	2ND	important questions solutiouons claqss
	3RD	important questions solutiouons claqss
	4TH	important questions solutiouons claqss
	5TH	rivision
	6TH	rivision
4TH	1ST	rivision
	2ND	rivision
	3RD	rivision