




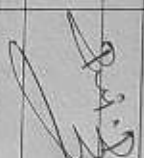

MAHARAJA POLYTECHNIC, GAMEI, BHUBANESWAR.
LESSON PLAN

SUBJECT NAME:-SURVEYING 2

NAME OF FACULTY:-PRAKASH KU. MALLICK
BRANCH & SEMESTER:-CIVIL ENGG& 6th SEM
TOTAL NO. OF STUDENT IN THE CLASS:- 23
TOTAL NO. OF CLASSES REQUIRED:-60
SESSION:-2022-23

Sl. No.	Topics to be covered	Topics covered on date	Total no. of students present	Verified by HOD	Verified by the principal	Remark
	UNIT:1 LEVELLING					
1	Purpose of leveling	10/3/22	20			
2	Definition of terms used in leveling – concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.	11/03/22	18			
3	Description of essential features and uses of different types of leveling instruments	11/03/22	19			
4	Concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis	15/03/22	20			
5	Levelling staff – types, features and use	16/03/22	19			
6	Temporary adjustments of level, taking reading with level	17/03/22	17			
7	Concept of bench mark, BS, IS, FS, CP, HI	18/03/22	15			
8	Principles of leveling – Simple leveling, Differential leveling	22/03/22	19			
9	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	23/03/22	18			
10	Different types of leveling, uses and methods – Fly leveling, check leveling, Profile leveling – longitudinal sections and cross-sections	28/03/22	15			
11	Plotting of profiles	4/04/22	18			
12	Effects of curvature and refraction, numerical problems on	5/04/22	19			

	application of correction				
13	Reciprocal leveling – principles, methods, numerical problems, precise leveling	6/04/22	19		
14	Difficulties in leveling, errors in leveling and precautions	8/04/22	20		
15	Sensitiveness of bubble tube, determination of sensitiveness	9/04/22	18		
16	Permanent adjustments of different types of levels.	11/04/22	19		
17	Setting grades and stakes, setting out grades of sewers and related problems	12/04/22	17		
	UNIT:2 CONTOURING				
18	Definitions of related terms, concepts of contours, characteristics of contours	13/04/22	15		
19	Methods of contouring, plotting contour maps	14/04/22	17		
20	Interpretation of contour maps, toposheets.	19/04/22	18		
21	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, computation of volume of earthwork from contour map for simple structure.	20/04/22	20		
	UNIT:3 PRINCIPLES OF THEODOLITE SURVEYING				
22	Purpose, definition of terms	21/04/22	20		
23	Description of features, component parts of a transit theodolite	22/04/22	18		
24	Fundamental axes of a theodolite, concept of vernier, reading a vernier	23/04/22	17		
25	Temporary adjustment of theodolite	2/05/22	16		
26	Concept of transiting – swinging, faceleft, face right, changing face	3/05/22	15		
27	Measurement of horizontal angles with theodolite by repetition and reiteration method	6/05/22	18		
28	Measurement of vertical angles with theodolite	7/05/22	16		
29	Determination of magnetic bearings with theodolite	8/05/22	19		

30	Measurement of deflection angle, direct angle, setting out angles, prolonging a straight line with theodolite	10/05/22	15			
31	Errors in Theodolite observations	11/05/22	18			
UNIT:4 THEODOLITE TRANSVERSING						
32	Methods of traversing with theodolite – inclined angle method, deflection angle method, bearing method	12/05/22	19			
33	Plotting the traverse by coordinate method	14/05/22	20			
34	Checks for open and closed traverse	15/05/22	20			
35	Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table, Numerical problems on omitted measurement of lengths & bearings	16/05/22	18			
36	Closing error – adjustment of angular errors, adjustment of bearings, numerical problems	17/05/22	17			
37	Balancing of traverse – Bowditch's method, transit method, graphical method, axis method	18/05/22	16			
38	Calculation of area of closed traverse	19/05/22	15			
UNIT:5 TACHEOMETRY (Only concepts; applications without derivation)						
39	Principles, stadia constants determination	20/05/22	18			
40	Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	21/05/22	20			
41	Elevations and distances of staff stations – numerical problems	22/05/22	19			
UNIT:6 CURVES						
42	compound, reverse and transition curve, Purpose & use of different types of curves in field	25/05/22	18			
43	Elements of circular curves, numerical problems	26/05/22	17			
44	Preparation of curve table for setting out	27/05/22	15			
45	Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord, (ii) successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles	28/05/22	20			

46	Obstacles in curve ranging – point of intersection inaccessible	29/05/22	20			
UNIT:7 COMPUTATION OF VOLUME						
47	Methods of computations, formula for different types of cross sections					
48	Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes.	30/05/22	18			
49	Measurement of volumes from spot levels, Contours and calculation of reservoir capacities.	02/06/22	17			
50	Mass haul diagram, construction & characteristics, use of mass diagram.	03/06/22	16			
	UNIT:8 MODERN SURVEYING METHODS	01/06/22	20			
51	Principles, features and use of (i) Micro-optic theodolite, digital theodolite.	05/06/22	17			
52	Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X, Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.	06/06/22	19			

Prakash
15.06.22

SIGN OF FACULTY

SIGN OF HOD

Prakash
15/06/22

SIGN OF PRINCIPAL

Prakash
15/06/22