GOVERNMENT POLYTECHNIC, BOLANGIR

LESSON PLAN

SUBJECT: LAND SURVEY– II (TH-1) ACCADEMIC SESSION: 2025-26(SUMMER)

FACULTY: SIDDHARTHA BEHERA SEMESTER: 6TH

(Civil Engg.)

Discipline: Civil Engineering	**Semester: 6th**	**Name of the teaching faculty: SIDDHARTHA BEHERA**	**Teaching Aids/Activities**	**Course Objecti ve**
Hour	**Chapter**	**Theory Topics**		CO1
	CH-1	**1 TACHEOMETRY:** 1.1 Principles.	PPT, Chalk and Board, Chart	CO1
		1.1. stadia constants determination	PPT, Chalk and Board, Chart	CO1
		1.2. Stadia tacheometry with staff held vertical and with line of collimation horizontal.	PPT, Chalk and Board, Chart	CO1
		1.2. Stadia tacheometry with staff held vertical and with line of collimation inclined, numerical problems.	PPT, Chalk and Board, Chart	CO1
		Numerical problems	PPT, Chalk and Board, Chart	CO1
		1.3. Elevations and distances of staff stations – numerical problems	PPT, Chalk and Board, Chart	CO1
		Numerical problems	PPT, Chalk and Board, Chart	CO1

	CH-2	2.1. compound, reverse and transition curve, Purpose & use of different types of curves infield	PPT, Chalk and Board, Chart	CO2
		2.2. Elements of circular curves	PPT, Chalk and Board, Chart	CO2
		Numerical problems	PPT, Chalk and Board, Chart	CO2
		2.3. Preparation of curve table for setting out	PPT, Chalk and Board, Chart	CO2
		2.4. Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord	PPT, Chalk and Board, Chart	CO2
		2.4. Setting out of circular curve by (ii) Successive bisection of arc, (iii) Offsets from tangent	PPT, Chalk and Board, Chart	CO2
		2.4. Setting out of circular curve by(iv)offsets from chord produced, (v) Rankine's method of tangent angles.	PPT, Chalk and Board, Chart	CO2
		2.5. Obstacles in curve ranging – point of intersection inaccessible	PPT, Chalk and Board, Chart	CO2
		2.5. Obstacles in curve ranging – point of intersection inaccessible	PPT, Chalk and Board, Chart	CO2
		Numerical problems on 2.5	PPT, Chalk and Board, Chart	CO2
		3.1. Fractional or Ratio Scale, Linear Scale, Graphical Scale 3.2. What is Map	PPT, Chalk and Board, Chart	CO3
		3.3. Map Scale and Map Projections. 3.3How Maps Convey Location and Extent	PPT, Chalk and Board, Chart	CO3
		3.4. How Maps Convey characteristics of features 3.5. How Maps Convey Spatial Relationship	PPT, Chalk and Board, Chart	CO3
		Class Test 1	PPT, Chalk and Board, Chart	

	CH-3	3.6. Classification of Maps 3.6.1. Physical Map 3.6.2Topographic Map	PPT, Chalk and Board, Chart	CO3
		3.6.3. Road Map	PPT, Chalk and Board, Chart	CO3
		3.6.4. Political Map 3.6.5. Economic & Resources Map	PPT, Chalk and Board, Chart	CO3
		3.6.6. Thematic Map 3.6.7. Climate Map	PPT, Chalk and Board, Chart	CO3
	CH-4	**4 SURVEY OF INDIA MAP SERIES:** 4.1. Open Series map	PPT, Chalk and Board, Chart	CO4
		4.2. Defense Series Map	PPT, Chalk and Board, Chart	CO4
		4.3. Map Nomenclature	PPT, Chalk and Board, Chart	CO4
		4.3.1QuadrangleName	PPT, Chalk and Board, Chart	CO4
		4.3.2. Latitude, Longitude & UTM	PPT, Chalk and Board, Chart	CO4
		4.3.3. Contour Lines	PPT, Chalk and Board, Chart	CO4
		4.3.4. Magnetic Declination	PPT, Chalk and Board, Chart	CO4
		4.3.5. Public Land Survey System	PPT, Chalk and Board, Chart	CO4
		4.3.6. Field Notes	PPT, Chalk and Board, Chart	CO4
		5.1. Aerial Photography: 5.1.1. Film, Focal Length, Scale	PPT, Chalk and Board, Chart	CO5

	CH-5	5.1.2. Types of Aerial Photographs (Oblique, Straight)	PPT, Chalk and Board, Chart	CO5
		5.2. Photogrammetry:	PPT, Chalk and Board, Chart	CO5
		5.2.1. Classification of Photogrammetry	PPT, Chalk and Board, Chart	CO5
		Class test 2	PPT, Chalk and Board, Chart	CO5
		5.2.2. Aerial Photogrammetry	PPT, Chalk and Board, Chart	CO5
		5.2.3. Terrestrial Photogrammetry	PPT, Chalk and Board, Chart	CO5
		5.3. **Photography process** 5.3.1. Acquisition of Imagery using aerial and satellite platform	PPT, Chalk and Board, Chart	CO5
		5.3.2. Control Survey 5.3.3. Geometric Distortion in Imagery, Application of Imagery and its support data orientation and triangulation stereoscopic measurement	PPT, Chalk and Board, Chart	CO5
		5.4.DTM/DEM Generation	PPT, Chalk and Board, Chart	CO5
		5.5. Ortho Image Generation	PPT, Chalk and Board, Chart	CO5
	CH-6	6.1. Principles, features and use of (i) Micro-optic theodolite, digital theodolite	PPT, Chalk and Board, Chart	CO6
		6.2.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 distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and	PPT, Chalk and Board, Chart	CO6
		trigonometry and triangulation.	PPT, Chalk and Board, Chart	CO6

		6.2 Continue	PPT, Chalk and Board, Chart	CO6
	CH-7	7.1.GPS: - Global Positioning 7.1.1. Working Principle of GPS, GPS Signals, 7.1.2. Errors of GPS, Positioning Methods	PPT, Chalk and Board, Chart	CO7
		Internal Assesment	PPT, Chalk and Board, Chart	CO7
		7.2. DGPS: - Differential Global Positioning System 7.2.1. Base Station Setup 7.2.2. Rover GPS Setup 7.2.3. Download, Post-Process and Export GPS data 7.2.4. Sequence to download GPS data from flashcards 7.2.5. Sequence to Post-Process GPS data 7.2.6. Sequence to export post process GPS data 7.2.7. Sequence to export GPS Time tags to file	PPT, Chalk and Board, Chart	CO7
		7.3.ETS: - Electronic Total Station 7.3. 1..1DistanceMeasurement 7.3.2. Angle Measurement 7.3.3. Leveling 7.3.4. Determining position	PPT, Chalk and Board, Chart	CO7
		7.3.5. Reference networks	PPT, Chalk and Board, Chart	CO7
		7.3.6. Errors and Accuracy	PPT, Chalk and Board, Chart	CO7

	CH-8	8.1. Components of GIS, Integration of Spatial and Attribute Information 8.2Three Views of Information System 8.2.1Database or Table View, Map View and Model View	PPT, Chalk and Board, Chart	CO8
		8.3. Spatial Data Model 8.4. Attribute Data Management and Metadata Concept	PPT, Chalk and Board, Chart	CO8
		8.5. Prepare data and adding to Arc Map. 8.6. Organizing data as layers.	PPT, Chalk and Board, Chart	CO8
		8.7. Editing the layers. 8.8. Switching to Layout View. 8.9. Change page orientation.	PPT, Chalk and Board, Chart	CO8
		8.10. Removing Borders. 8.11. Adding and editing map information Previous year question discussion 8.12. Finalize the map	PPT, Chalk and Board, Chart	CO8
		Previous year question discussion	PPT, Chalk and Board, Chart	
		Revision	PPT, Chalk and Board, Chart	
		Revision	PPT, Chalk and Board, Chart	