UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA
DEPARTMENT OF CIVIL ENGINEERING

LESSON PLAN TH1 LAND SURVEY-II 6TH SEM (2023-24)

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PERIOD NO.	CONTENTS	CHAPTER
1-2	Principles, stadia constants determination	1. Tacheometry
3-5	Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems.	
6-8	Elevations and distances of staff stations – numerical problems	
9	Class Test 1 (10 marks 30 mins) & Answer Discussion	
10	Compound, reverse and transition curve, Purpose & use of different types of curves in field	
11	Elements of circular curves, numerical problems	2. Curves
12	Preparation of curve table for setting out	
13	Setting out of circular curve by chain and tape and by instrument angular methods - offsets from long chord	
14	Setting out of circular curve by chain and tape and by instrument angular methods - successive bisection of arc	
15	Setting out of circular curve by chain and tape and by instrument angular methods - offsets from tangents	
16	Setting out of circular curve by chain and tape and by instrument angular methods - offsets from chord produced	
17	Setting out of circular curve by chain and tape and by instrument angular methods - Rankine's method of tangent angles	
18	Obstacles in curve ranging – point of intersection inaccessible	
19	Class Test 2 (20 marks 30 mins) & Answer Discussion	
20	Fractional or Ratio Scale, Linear Scale, Graphical Scale What is Map, Map Scale and Map Projections	3. Basics On Scale & Basics Of Map
21	How Maps Convey Location and Extent	
22	How Maps Convey characteristics of features	
23	How Maps Convey Spatial Relationship	
24 - 25	Classification of Maps - Physical Map, Topographic Map, Road Map, Political Map, Economic & Resources Map, Thematic Map, Climate Map	
26	Class Test 3 (20 marks 30 mins) & Answer Discussion	
27	Open Series map	4. Survey Of India Map Series
28	Defence Series Map	
29 - 32	Map Nomenclature: Quadrangle Name, Latitude, Longitude, UTM's, Contour Lines, Magnetic Declination, Public Land Survey System, Field Notes	
33	Class Test 4 (20 marks 30 mins) & Answer Discussion	
34	Aerial Photography: Film, Focal Length, Scale, Types of Aerial Photographs (Oblique, Straight)	5. Basics Of Aerial Photography, Photogrammetry, Dem And Ortho Image Generation
35 - 36	Photogrammetry: Classification of Photogrammetry, Aerial Photogrammetry, Terrestrial Photogrammetry	
37 - 39	Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform Control Survey Geometric Distortion in Imagery	

	Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1 X-parallax 19.2.2 Y-parallax	
40	DTM/DEM Generation Ortho Image Generation	
41	Class Test 5 (20 marks 30 mins) & Answer Discussion	
42	1st IA	Ch 1 - 5
43-44	Principles, features and use of Micro-optic theodolite, digital theodolite	6. Modern Surveying Methods
45-49	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.	
50	Class Test 6 (20 marks 30 mins) & Answer Discussion	
51 - 52	GPS: - Global Positioning Working Principle of GPS,GPS Signals, Errors of GPS, Positioning Methods	7. Basics on GPS, DGPS & ETS
53 - 56	DGPS: - Differential Global Positioning System Base Station Setup Rover GPS Set up Download, Post-Process and Export GPS data 7 Sequence to download GPS data from flashcards Sequence to Post-Process GPS data Sequence to export post process GPS data Sequence to export GPS Time tags to file	
57 - 59	ETS: - Electronic Total Station Distance Measurement Angle Measurement Levelling Determining position Reference networks Errors and Accuracy	
60	Class Test 7 (20 marks 30 mins) & Answer Discussion	
61	Components of GIS, Integration of Spatial and Attribute Information	8. Basics of GIS & Map Preparation using GIS.
62	Three Views of Information System: Database or Table View, Map View and Model View	
63 - 64	Spatial Data Model Attribute Data Management and Metadata Concept.	
65 - 70	Prepare data and adding to Arc Map. Organizing data as layers. Editing the layers. Switching to Layout View. Change page orientation. Removing Borders. Adding and editing map information Finalize the map	
71	Class Test 8 (20 marks 30 mins) & Answer Discussion	
72	2nd IA	Ch 6 - 8
73	Doubt Clearing	
74	Doubt Clearing	
75	Doubt Clearing	