DHABALESWAR INSTITUTE OF POLYTECHNIC
LESSON PLAN

Discipline: CIVIL	Semester: 6th	Name of the Teaching Faculty: Shriman Kumar Mishra
Subject: Land Survey II	No. of days per week Class Alloted:	Semester from Dt. 14/02/23 to Dt. 23/05/23 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
Feb. 1st		1. TACHEOMETRY :-
	1st class	1.1. Principles, Stadia Constants determination
	2nd class	1.2. Stadia tacheometry with staff held ve-
	3rd class	rtical and with line of Collimation horizontal or inclined, numerical problem
	4th class	1.3. Elevations and distances of staff Stations
		2. CURVES :-
2nd Week	1st class	2.1. Compound, Reverse and transition Curve, purpose & use of different types of Curves in field
	2nd class	2.2. Elements of circular curves,
	3rd class	2.3. Preparations of Curve table for Setting out
	4th class	2.4. Setting out of circular Curve by
	5th class	chain and tape and by instrument
	6th class	angular methods (i) Offsets from
	7th class	long chord, (ii) Successive bisection of arc, (iii) offsets from tangent (iv) offset from chord produce (v) Rankine's method of tangent angles
3rd Week	1st class	2.5. Obstacles in curve ranging - point of intersection inaccessible
		3. BASICS ON SCALE AND BASIC OF MAP :-
	2nd class	3.1. Fractional or Ratio scale, Linear Scale, Graphical scale
	3rd class	3.2. What is map, Map Scale and Map projection
	4th class	3.3. How maps Convey Location and Extent

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Week	Class Day	Theory / Practical Topics
	5th Class	3.4. How maps Convey characteristics of features
4th Week	1st Class	3.5. How maps Convey Spatial Relationship
	2nd Class	3.5.1. Classification of Map
	3rd Class	3.5.1. Physical Map 3.5.2. Topographic Map
	4th Class	3.5.3. Road Map 3.5.4. Political Map
	5th Class	3.5.5. Economic & Resources Map 3.5.6. Thematic Map 3.5.7. Climate Map
5th Week		4. SURVEY OF INDIA MAP SERIES:-
	1st Class	4.1. Open Series map
	2nd Class	4.2. Defence Series map
	3rd Class	4.3. Map Nomenclature 4.3.1. Quadrangle Name 4.3.2. Latitude, Longitude, UTM's
	4th Class	4.3.4. Contour Lines 4.3.5. Magnetic Declination 4.3.6. Public land Survey System 4.3.7. Field Notes
6th Week		5. BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION:-
	1st Class	5.1. Aerial Photography: 5.1.1. Film, Focal Length, Scale
	2nd Class	5.1.2. Types of Aerial Photographs (Oblique, Straight)
	3rd Class	5.2. Photogrammetry:
	4th Class	5.2.1. Classification of photogrammetry 5.2.2. Aerial Photogrammetry 5.2.3. Terrestrial photogrammetry
	5th Class	5.3. Photogrammetry Process:

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Week	Class Day	Theory / Practical Topics
7th Week	1st class	5.3.1. Acquisition of imagery using aerial and satellite platform
	2nd Class	5.3.2. Control Survey
	3rd class	5.3.3. Geometric Distortion in imagery
	4th Class	Application of imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1. X-Parallax 19.2.2. Y-Parallax
	5th Class	
8th Week	1st Class	5.4. DTM/DEM Generation 5.5. Ortho Image Generation
		6. MODERN SURVEYING METHODS:-
	2nd class	6.1. Principles, features and use of (i) Micro-Optic theodolite, digital theodolite
	3rd class	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 nothing, easting and elevation) of surveyed points relative to Total station position using trigonometry and triangulation.
	4th class	
9th Week	~~1st~~ class	
	~~2nd~~ Class	
	3rd class	
		7. BASICS ON GPS & DGPS AND ETS:-
	4th class	7.1. GPS - Global positioning
10th Week	1st class	7.1.1. Working principle of GPS, GPS Signal
	2nd class	7.1.2. Errors of GPS, Positioning Method
	3rd class	7.2. DGPS - Differential Global positioning System
	4th Class	7.2.1 - Base station Set up 7.2.2 - Rover GPS Setup

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Week	Class Day	Theory / Practical Topics
11th Week	1st class	7.2.3. Download, Post - Process and Export GPS data
		7.2.4. Sequence to download GPS data from flashcard
	2nd class	7.2.5. Sequence to post-process GPS data
		7.2.6. Sequence to export post process GPS data
	3rd class	7.2.7. Sequence to export GPS Time tags to file
	4th class	
12th Week	1st class	7.3. ETS - Electronic Total Station
	2nd class	7.3.1. Distance Measurement
	3rd class	7.3.2. Angle Measurement
	4th class	7.3.3. Leveling
		7.3.4. Determining position
		7.3.5. Reference networks
		7.3.6. Errors and Accuracy
		8. BASICS OF GIS AND MAP PREPARATION USING GIS:-
13th Week	1st class	8.1. Components of GIS, Integration of Spatial and Attribute information
	2nd class	8.2. Three views of information system
		8.2.1. Database or Table view, Map view and Model view
	3rd class	8.3. Spatial Data Model
	4th class	8.4. Attribute Data Management and Metadata Concept.
14th Week	1st class	8.5. Prepare data and adding to Arc Map
	2nd class	8.6. Organizing data as Layers.
	3rd class	8.7. Editing the Layers
	4th class	8.8. Switching to layout view
15th Week	1st class	8.9. Change page Orientation
		8.10. Removing Borders

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Week	Class Day	Theory / Practical Topics
		8.11. Adding and editing map information. 8.12. Finalize the map