GOVERNMENT POLYTECHNIC, PURI
DEPARTMENT OF CIVIL ENGINEERING

Discipline: **CIVIL ENGG.**	Semester: 6TH	Name of the Teaching Faculty: - **Mr. SURYAKANT DASH**
Subject:**LAND SURVEY-II(Th01)**	No. of days/per week class allotted: 05	Semester From date: 10.03.2022 To Date:10.06.2022 No. of Weeks:15
PRE-REQUISITE	Knowledge of land survey-1.	
COURSE OUTCOMES	1. Solve numerical problems in the segment off tacheometry	
	2. Comprehend concepts of curve ranging and solve simple numerical	
	3. Study and interpret maps	
	4. Acquaint themselves with modern surveying methods including use of digital theodolite and total station	
	5. Comprehend basics of GPS setup, data processing and export	
	6. Comprehend basics of GIS and prepare map using GIS data	

Week	Class day	Theory topics	Delivery Method
1ST	1ST	**TACHEOMETRY**: (Only concepts; applications without derivation) 1.1 Principles, stadia constants determination	Whiteboard
	2ND	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined.	Whiteboard
	3RD	numerical problems	Whiteboard
	4TH	numerical problems	Whiteboard
	5TH	numerical problems	
2ND	1ST	1.3 Elevations and distances of staff stations –	Whiteboard
	2ND	numerical problems	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**CURVES** : 2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field	Whiteboard
	5TH	2.2 Elements of circular curves,	
3RD	1ST	numerical problems	Whiteboard
	2ND	numerical problems	Whiteboard
	3RD	2.3 Preparation of curve table for setting out	Whiteboard
	4TH	2.4 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. (v) Rankine's method of tangent angles (No derivation)	Whiteboard
	5TH	2.5 Obstacles in curve ranging – point of intersection inaccessible	Whiteboard
4TH	1ST	**Quiz and assignment**	Whiteboard
	2ND	**BASICS ON SCALE AND BASICS OF MAP**: 3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale	Whiteboard
	3RD	3.2 What is Map, Map Scale and Map Projections	Whiteboard
	4TH	3.3 How Maps Convey Location and Extent	Whiteboard
	5TH	3.4 How Maps Convey characteristics of features	
5TH	1ST	3.5 How Maps Convey Spatial Relationship 3.5.1 Classification of Maps	Whiteboard

		3.5.1 Physical Map	Whiteboard
	2ND	3.5.2 Topographic Map 3.5.3 Road Map	Whiteboard
	3RD	3.5.4 Political Map 3.5.5 Economic & Resources Map 3.5.6 Thematic Map 3.5.7 Climate Map	Whiteboard
	4TH	**SURVEY OF INDIA MAP SERIES** 4.1 Open Series map	Whiteboard
	5TH	4.2 Defense Series Map	Whiteboard
6TH	1ST	4.3 Map Nomenclature	Whiteboard
	2ND	4.3.1 Quadrangle Name	Whiteboard
	3RD	4.3.2 Latitude, Longitude, UTM's	Whiteboard
	4TH	4.3.4 Contour Lines	
	5TH	4.3.5 Magnetic Declination	Whiteboard
7TH	1ST	4.3.6 Public Land Survey System	Whiteboard
	2ND	4.3.7 Field Notes	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**5 BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION:** 5.1 Aerial Photography	Whiteboard
	5TH	: 5.1.1 Film, Focal Length, Scale 5.1.2 Types of Aerial Photographs (Oblique, Straight)	Whiteboard
8TH	1ST	5.2 Photogrammetry: 5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry 5.2.3 Terrestrial Photogrammetry	Whiteboard
	2ND	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform	Whiteboard
	3RD	5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement	Whiteboard
	4TH	19.9.1 X-parallax	Whiteboard
	5TH	19.2.2 Y-parallax	
	1ST	5.4 DTM/DEM Generation	Whiteboard
	2ND	5.5 Ortho Image Generation	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**MODERN SURVEYING METHODS** : 6.1 Principles, features and use of (i) Micro-optic theodolite.	Whiteboard
9TH	5TH	Micro-optic theodolite.	Whiteboard
10TH	1ST	Micro-optic theodolite.	Whiteboard
	2ND	digital theodolite	Whiteboard
	3RD	digital theodolite	Whiteboard
	4TH	digital theodolite	Whiteboard
	5TH	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.	Whiteboard
11TH	1ST	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.	Whiteboard
	2ND	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	Whiteboard

		surveyed points relative to Total Station position using trigonometry and triangulation.	
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**BASICS ON GPS & DGPS AND ETS** 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals,	Whiteboard
	5TH	7.1.2 Errors of GPS,Positioning Methods	Whiteboard
12TH	1ST	7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup 7.2.2 Rover GPS Set up	Whiteboard
	2ND	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	Whiteboard
	3RD	7.2.6 Sequence to export post process GPS data 7.2.7 Sequence to export GPS Time tags to file	Whiteboard
	4TH	7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement	Whiteboard
	5TH	7.3.2 Angle Measurement 7.3.3 Leveling	Whiteboard
13TH	1ST	7.3.4 Determining position 7.3.5 Reference networks	Whiteboard
	2ND	7.3.6 Errors and Accuracy	Whiteboard
	3RD	**Quiz and assignment**	Whiteboard
	4TH	**BASICS OF GIS AND MAP PREPARATION USING GIS** 8.1 Components of GIS, Integration of Spatial and Attribute Information	Whiteboard
	5TH	8.2 Three Views of Information System 8.2.1 Database or Table View, Map View and Model View	Whiteboard
14TH	1ST	8.3 Spatial Data Model 8.4 Attribute Data Management and Metadata Concept	Whiteboard
	2ND	8.5 Prepare data and adding to Arc Map.	Whiteboard
	3RD	8.6 Organizing data as layers. 8.7 Editing the layers.	Whiteboard
	4TH	8.8 Switching to Layout View. 8.9 Change page orientation.	Whiteboard
	5TH	8.10 Removing Borders	Whiteboard
15TH	1ST	8.11 Adding and editing map information. 8.12 Finalize the map	Whiteboard
	2ND	**Quiz and assignment**	Whiteboard
	3RD	REVISION	Whiteboard
	4TH	REVISION	Whiteboard
	5TH	REVISION	Whiteboard

LEARNING RESOUCES

1. Advanced Surveying -D. Gaikwad
2. Surveying Vol. I, II, III-B. C. Punmia
3. A text book of surveying and leveling -R. Agor
4. Surveying and Levelling - N. N. Basak

WEBSITE RESOUCES:

1. https://youtu.be/dhuu_J49cY

Swathi 10.03.2022

SIGNATURE OF CONCERNED FACULTY PRINCIPAL SIGNATURE OF HOD I/C

G.P. PURI