


UGMIT, RAYAGADA
DEPARTMENT CIVIL ENGINEERING

UGMIT, RAYAGADA DEPARTMENT CIVIL ENGINEERING		
Discipline: CIVIL ENGG	Semester: 6 TH	Name of the Teaching Faculty: CHINMAYA MAHARANA,GF
Subject: – LAND SURVEY II	No. of days/per week class allotted: 05	Semester From date: 22.12.2025 To Date: 18.04.2026 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1 ST	1 ST	TACHEOMETRY: (Only concepts; applications without derivation)
	2 ND	Principles, stadia constants determination
	3 RD	2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems
	4 TH	Elevations and distances of staff stations – numerical problems
	5 TH	CURVES : INTRODUCTION
2 ND	1 ST	Compound, reverse and transition curve, Purpose & use of different types of curves in field
	2 ND	Elements of circular curves, numerical problems
	3 RD	QUIZ
	4 TH	Preparation of curve table for setting out
	5 TH	Setting out of circular curve by chain and tape and by instrument angular methods
3 RD	1 ST	(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 (No derivation)
	2 ND	Obstacles in curve ranging – point of intersection inaccessible
	3 RD	BASICS ON SCALE AND BASICS OF MAP:
	4 TH	Fractional or Ratio Scale, Linear Scale, Graphical Scale
	5 TH	What is Map, Map Scale and Map Projections
4 TH	1 ST	How Maps Convey Location and Extent
	2 ND	How Maps Convey characteristics of features, How Maps Convey Spatial Relationship
	3 RD	Classification of Maps : Physical Map Topographic Map Road Map
	4 TH	Political Map Economic & Resources Map Thematic Map Climate Map
	5 TH	QUIZ
5 TH	1 ST	SURVEY OF INDIA MAP SERIES:
	2 ND	Open Series map : Defense Series Map Map Nomenclature
	3 RD	Quadrangle Name Latitude, Longitude, UTM's , Contour Lines

	4 TH	Magnetic Declination ,Public Land Survey System Field Notes
	5 TH	BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION:
6 TH	1 ST	Aerial Photograph, Film, Focal Length, Scale
	2 ND	Types of Aerial Photographs (Oblique, Straight) Photogrammetry:
	3 RD	Classification of Photogrammetry
	4 TH	Aerial Photogrammetry
	5 TH	Terrestrial Photogrammetry
7 TH	1 ST	QUIZ
	2 ND	Terrestrial Photogrammetry
	3 RD	Acquisition of Imagery using aerial and satellite platform,
	4 TH	Control Survey
	5 TH	Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation
8 TH	1 ST	Stereoscopic Measurement : X-parallax, Y-parallax
	2 ND	MODERN SURVEYING METHODS :
	3 RD	6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite,
	4 TH	6.2 Working principles of a Total Station (Set up and use of total station to measure angles
	5 TH	distances of points under survey from total station and the co-ordinates (X,Y,Z)
9 TH	1 ST	QUIZ
	2 ND	BASICS ON GPS & DGPS AND ETS:
	3 RD	Global Positioning
	4 TH	Working Principle of GPS,GPS Signals,
	5 TH	Errors of GPS,Positioning Methods
10 TH	1 ST	DGPS: - Differential Global Positioning System ,
	2 ND	Base Station Setup , Rover GPS Set up
	3 RD	Download, Post-Process and Export GPS data
	4 TH	, Sequence to download GPS data from flashcards
	5 TH	Sequence to Post-Process GPS data ,
11 TH	1 ST	Sequence to export post process GPS data
	2 ND	Sequence to export GPS Time tags tofile
	3 RD	ETS: - Electronic Total Station
	4 TH	,Distance Measurement
	5 TH	Continuation
12 TH	1 ST	Angle Measurement , Leveling
	2 ND	Determining position 7.1.5 Reference networks Errors and Accuracy
	3 RD	QUIZ
	4 TH	BASICS OF GIS AND MAP PREPARATION USING GIS
	5 TH	Components of GIS, Integration of Spatial and Attribute Information
13 TH	1 ST	Three Views of Information System
	2 ND	Database or Table View,

	3 RD	Map View and Model View
	4 TH	, Spatial Data Model
	5 TH	Continuation
14 TH	1 ST	Editing the layers.
	2 ND	Switching to Layout View
	3 RD	Continuation
		Prepare data and adding to Arc Map
	5 TH	Organizing data as layers
15 TH	1 ST	Spatial Data Model
	2 ND	Attribute Data Management and Metadata Concept
	3 RD	Change page orientation.
	4 TH	Removing Borders
	5 TH	Revision

Chinnmaya Maharana
 Sign. of Faculty D-22/12/25


 Sign. of HOD