

**ACADEMIC SESSION: SUMMER-2023**

<b>Discipline :Civil engg</b>	<b>Semester: 6th</b>	<b>Name of the Teaching Faculty : Subhasmita behera</b>
Subject: Land Survey-II	No. of Days / Week class allotted: 5	Semester Duration: 14/02/2023 to 23/05/2023  No. of Weeks : 15
<b>Week</b>	<b>Class day</b>	<b>Theory/Practical Topics:</b>
<b>1<sup>st</sup></b>	<b>1<sup>st</sup></b>	Principles of tacheometry
	<b>2<sup>nd</sup></b>	stadia constants determination
	<b>3<sup>rd</sup></b>	Numerical problems on stadia constants
	<b>4<sup>th</sup></b>	Stadia tacheometry with staff held vertical and with line of collimation horizontal Case-1: considering angle of elevation
	<b>5<sup>th</sup></b>	Numerical problem
<b>2<sup>nd</sup></b>	<b>1<sup>st</sup></b>	Stadia tacheometry with staff held vertical and with line of collimation horizontal Case-2: considering angle of depression
	<b>2<sup>nd</sup></b>	Numerical problem
	<b>3<sup>rd</sup></b>	Stadia tacheometry with staff held vertical and with line of collimation inclined
	<b>4<sup>th</sup></b>	numerical problems
	<b>5<sup>th</sup></b>	compound, reverse and transition curve
<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>	Purpose & use of different types of curves in field
	<b>2<sup>nd</sup></b>	Elements of circular curves, numerical problems
	<b>3<sup>rd</sup></b>	Preparation of curve table for setting out
	<b>4<sup>th</sup></b>	Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord
	<b>5<sup>th</sup></b>	Numerical problem
<b>4th</b>	<b>1<sup>st</sup></b>	Setting out of circular curve by chain and tape and by instrument angular methods (ii) successive bisection of arc
	<b>2<sup>nd</sup></b>	Numerical problem
	<b>3<sup>rd</sup></b>	Setting out of circular curve by chain and tape and by instrument angular methods (iii) offsets from tangents
	<b>4<sup>th</sup></b>	Setting out of circular curve by chain and tape and by instrument

		angular methods (iv) offsets from chord produced
	5 <sup>th</sup>	Setting out of circular curve by chain and tape and by instrument angular methods (v) Rankine's method of tangent angles (No derivation)
5 <sup>th</sup>	1 <sup>st</sup>	Numerical problem
	2 <sup>nd</sup>	Obstacles in curve ranging – point of intersection inaccessible
	3 <sup>rd</sup>	Fractional or Ratio Scale, Linear Scale, Graphical Scale
	4 <sup>th</sup>	What is Map, Map Scale and Map Projections
	5 <sup>th</sup>	How Maps Convey Location and Extent
6 <sup>th</sup>	1 <sup>st</sup>	How Maps Convey characteristics of features
	2 <sup>nd</sup>	How Maps Convey Spatial Relationship
	3 <sup>rd</sup>	Classification of Maps 1) Physical Map 2) Topographic Map
	4 <sup>th</sup>	Road Map , Political Map
	5 <sup>th</sup>	Economic & Resources Map ,Thematic Map,Climate Map
7 <sup>th</sup>	1 <sup>st</sup>	Open Series map
	2 <sup>nd</sup>	Defense Series Map
	3 <sup>rd</sup>	Map Nomenclature
	4 <sup>th</sup>	Quadrangle Name
	5 <sup>th</sup>	Latitude, Longitude, UTM's
8 <sup>th</sup>	1 <sup>st</sup>	Contour Lines
	2 <sup>nd</sup>	Magnetic Declination
	3 <sup>rd</sup>	Public Land Survey System
	4 <sup>th</sup>	Field Notes
	5 <sup>th</sup>	Aerial Photography: Film, Focal Length, Scale
9 <sup>th</sup>	1 <sup>st</sup>	Types of Aerial Photographs (Oblique, Straight)
	2 <sup>nd</sup>	Photogrammetry: Classification of Photogrammetry
	3 <sup>rd</sup>	Aerial Photogrammetry, Terrestrial Photogrammetry

	4 <sup>th</sup>	Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform
	5 <sup>th</sup>	Control Survey Geometric Distortion in Imagery
10 <sup>th</sup>	1 <sup>st</sup>	Application of Imagery and its support data Orientation and Triangulation
	2 <sup>nd</sup>	Stereoscopic Measurement
	3 <sup>rd</sup>	X-parallax, Y-parallax
	4 <sup>th</sup>	DTM/DEM Generation
	5 <sup>th</sup>	Ortho Image Generation
11 <sup>th</sup>	1 <sup>st</sup>	Principles, features and use of (i) Micro-optic theodolite
	2 <sup>nd</sup>	Principles, features and use of (ii) digital theodolite
	3 <sup>rd</sup>	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
	4 <sup>th</sup>	Continued
	5 <sup>th</sup>	Continued
12 <sup>th</sup>	1 <sup>st</sup>	GPS: - Global Positioning Working Principle of GPS,GPS Signals,
	2 <sup>nd</sup>	Errors of GPS,Positioning Methods
	3 <sup>rd</sup>	DGPS: - Differential Global Positioning System
	4 <sup>th</sup>	Base Station Setup,Rover GPS Set up Download, Post-Process and Export GPS data
	5 <sup>th</sup>	Sequence to download GPS data from flashcards, Sequence to Post-Process GPS data
13 <sup>th</sup>	1 <sup>st</sup>	Sequence to export post process GPS data, Sequence to export GPS Time tags to file
	2 <sup>nd</sup>	ETS: - Electronic Total Station, Distance Measurement Angle Measurement
	3 <sup>rd</sup>	Leveling

	4 <sup>th</sup>	Determining position,Reference networks
	5 <sup>th</sup>	Errors and Accuracy
14 <sup>th</sup>	1 <sup>st</sup>	Components of GIS, Integration of Spatial and Attribute Information, Three Views of Information System
	2 <sup>nd</sup>	Database or Table View, Map View and Model View
	3 <sup>rd</sup>	Spatial Data Model, Attribute Data Management and Metadata Concept
	4 <sup>th</sup>	Prepare data and adding to Arc Map, Organizing data as layers.
	5 <sup>th</sup>	Editing the layers
15 <sup>th</sup>	1 <sup>st</sup>	Switching to Layout View.
	2 <sup>nd</sup>	Change page orientation.
	3 <sup>rd</sup>	Removing Borders
	4 <sup>th</sup>	Adding and editing map information.
	5 <sup>th</sup>	Finalize the map