

**ACADEMIC SESSION: SUMMER-2026**

Discipline :Civil engg	Semester: 6th	Name of the Teaching Faculty : Subhasmita behera, Guest faculty (civil)
Subject: Land Survey-II	No. of Days / Week class allotted: 5	Semester Duration: 22/12/2025 to 18/04/2026  No. of Weeks : 17
Week	Class day	Theory/Practical Topics:
1 <sup>st</sup>	1 <sup>st</sup>	Principles of tacheometry
	2 <sup>nd</sup>	stadia constants determination
	3 <sup>rd</sup>	Numerical problems on stadia constants
	4 <sup>th</sup>	Stadia tacheometry with staff held vertical and with line of collimation horizontal Case-1: considering angle of elevation
	5 <sup>th</sup>	Numerical problem
2 <sup>nd</sup>	1 <sup>st</sup>	Stadia tacheometry with staff held vertical and with line of collimation horizontal Case-2: considering angle of depression
	2 <sup>nd</sup>	Numerical problem
	3 <sup>rd</sup>	Numerical problem
	4 <sup>th</sup>	Numerical problem
	5 <sup>th</sup>	Stadia tacheometry with staff held vertical and with line of collimation inclined
3 <sup>rd</sup>	1 <sup>st</sup>	numerical problems
	2 <sup>nd</sup>	numerical problems
	3 <sup>rd</sup>	compound, reverse and transition curve
	4 <sup>th</sup>	Purpose & use of different types of curves in field
	5 <sup>th</sup>	Elements of circular curves, numerical problems
4 <sup>th</sup>	1 <sup>st</sup>	Preparation of curve table for setting out
	2 <sup>nd</sup>	Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord
	3 <sup>rd</sup>	Numerical problem
	4 <sup>th</sup>	Numerical problem
	5 <sup>th</sup>	Setting out of circular curve by chain and tape and by instrument angular methods (ii) successive bisection of arc
5 <sup>th</sup>	1 <sup>st</sup>	Numerical problem
	2 <sup>nd</sup>	Setting out of circular curve by chain and tape and by instrument angular methods (iii) offsets from tangents
	3 <sup>rd</sup>	Setting out of circular curve by chain and tape and by instrument angular methods (iv) offsets from chord produced
	4 <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>	Numerical problem
	1 <sup>st</sup>	Obstacles in curve ranging – point of intersection inaccessible
	2 <sup>nd</sup>	Fractional or Ratio Scale, Linear Scale, Graphical Scale

6 <sup>th</sup>	3 <sup>rd</sup>	What is Map, Map Scale and Map Projections
	4 <sup>th</sup>	How Maps Convey Location and Extent
	5 <sup>th</sup>	How Maps Convey characteristics of features
7 <sup>th</sup>	1 <sup>st</sup>	How Maps Convey Spatial Relationship
	2 <sup>nd</sup>	Classification of Maps 1) Physical Map 2) Topographic Map
	3 <sup>rd</sup>	Road Map , Political Map
	4 <sup>th</sup>	Economic & Resources Map , Thematic Map, Climate Map
	5 <sup>th</sup>	Open Series map
8 <sup>th</sup>	1 <sup>st</sup>	Defense Series Map
	2 <sup>nd</sup>	Map Nomenclature
	3 <sup>rd</sup>	Quadrangle Name
	4 <sup>th</sup>	Latitude, Longitude, UTM's
	5 <sup>th</sup>	Contour Lines
9 <sup>th</sup>	1 <sup>st</sup>	Magnetic Declination
	2 <sup>nd</sup>	Public Land Survey System
	3 <sup>rd</sup>	Field Notes
	4 <sup>th</sup>	Aerial Photography: Film, Focal Length, Scale
	5 <sup>th</sup>	Types of Aerial Photographs (Oblique, Straight)
10 <sup>th</sup>	1 <sup>st</sup>	Photogrammetry: Classification of Photogrammetry
	2 <sup>nd</sup>	Aerial Photogrammetry, Terrestrial Photogrammetry
	3 <sup>rd</sup>	Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform
	4 <sup>th</sup>	Control Survey Geometric Distortion in Imagery
	5 <sup>th</sup>	Application of Imagery and its support data Orientation and Triangulation
11 <sup>th</sup>	1 <sup>st</sup>	Stereoscopic Measurement
	2 <sup>nd</sup>	X-parallax, Y-parallax
	3 <sup>rd</sup>	DTM/DEM Generation
	4 <sup>th</sup>	Ortho Image Generation
	5 <sup>th</sup>	Principles, features and use of (i) Micro-optic theodolite
12 <sup>th</sup>	1 <sup>st</sup>	Principles, features and use of (ii) digital theodolite
	2 <sup>nd</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
	3 <sup>rd</sup>	Continued
	4 <sup>th</sup>	Continued
	5 <sup>th</sup>	GPS: - Global Positioning Working Principle of GPS, GPS Signals,
13 <sup>th</sup>	1 <sup>st</sup>	Errors of GPS, Positioning Methods
	2 <sup>nd</sup>	DGPS: - Differential Global Positioning System
	3 <sup>rd</sup>	Base Station Setup, Rover GPS Set up Download, Post-Process and Export GPS data
	4 <sup>th</sup>	Sequence to download GPS data from flashcards, Sequence to Post-Process GPS data
	5 <sup>th</sup>	Sequence to export post process GPS data, Sequence to export GPS Time tags to file

14 <sup>th</sup>	1 <sup>st</sup>	ETS: - Electronic Total Station, Distance Measurement Angle Measurement
	2 <sup>nd</sup>	Leveling
	3 <sup>rd</sup>	Determining position, Reference networks
	4 <sup>th</sup>	Errors and Accuracy
	5 <sup>th</sup>	Components of GIS, Integration of Spatial and Attribute Information, Three Views of Information System
15 <sup>th</sup>	1 <sup>st</sup>	Database or Table View, Map View and Model View
	2 <sup>nd</sup>	Spatial Data Model, Attribute Data Management and Metadata Concept
	3 <sup>rd</sup>	Prepare data and adding to Arc Map, Organizing data as layers.
	4 <sup>th</sup>	Editing the layers
	5 <sup>th</sup>	Switching to Layout View.
16 <sup>th</sup>	1 <sup>st</sup>	Change page orientation
	2 <sup>nd</sup>	Removing Borders
	3 <sup>rd</sup>	Adding and editing map information.
	4 <sup>th</sup>	Finalize the map
	5 <sup>th</sup>	Previous year question answer discussion
17 <sup>th</sup>	1 <sup>st</sup>	Previous year question answer discussion
	2 <sup>nd</sup>	Previous year question answer discussion
	3 <sup>rd</sup>	Previous year question answer discussion
	4 <sup>th</sup>	Previous year question answer discussion
	5 <sup>th</sup>	Previous year question answer discussion

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22/12/25  
Prepared By :

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