Lesson Plan for LAND SURVEY-II(TH-1), Winter-2025-26		
Discipline	**Semester**	**Name of the teaching faculty**
Civil Engineering	**6TH**	**Manoj Ku Beherdalai, Lect., S-II(Civil))**
Subject: LAND SURVEY-II(TH-1)		**No. of days per Week classes are allotted: 05**
No. of weeks-15 weeks		**Semester Duration: 22.12.2025 to 18.04.2026**
Weeks	**Class days**	**Theory**
1ST	**1ST**	**TACHEOMETRY**
	2ND	Basic concepts on Tachometry and application.
	3RD	Principles, stadia constants determination
	4TH	Stadia tachometry with staff held vertical and with line of collimation horizontal and problems
	5TH	Stadia tachometry with staff held vertical and with line of collimation inclined and problems
2ND	**1ST**	Elevations and distances of staff stations –numerical problems
	2ND	Revision of class and question answer session
		CURVES
	3RD	compound, reverse and transition curve, Purpose & use of different types of curves in field
	4TH	Elements of circular curves
	5TH	Elements of circular curves, numerical problems
3RD	**1ST**	Preparation of curve table for setting out
	2ND	Setting out of circular curve by chain and tape and by instrument angular methods(i)offsets from long chord, (ii)successive bisection of arc
	3RD	Setting out of circular curve by chain and tape and by instrument angular methods (iii)offsets from tangents
	4TH	(iv)offsets from chord produced, (v) Rankine's method of tangent angles
	5TH	Obstacles in curve ranging–point of intersection inaccessible
		BASICS ON SCALE AND BASICS OF MAP
4TH	**1ST**	Fractional or Ratio Scale, Linear Scale, Graphical Scale
	2ND	What is Map, Map Scale and Map Projection
	3RD	How Maps Convey Location and Extent
	4TH	How Maps Convey Spatial Relationship
	5TH	Classification of Map: Physical Map, Topographic Map, Road Map
5TH	**1ST**	Classification of Map: Road Map, Political Map
	2ND	Classification of Map: Economic & Resources Map, Thematic Map & Climate Map
	3RD	Revision of class and question answer session
		SURVEY OF INDIA MAP SERIES
	4TH	Open Series map
	5TH	Defense Series Map
6TH	**1ST**	Map Nomenclature
	2ND	Quadrangle Name
	3RD	Latitude, Longitude, UTM's
	4TH	Contour Line
	5TH	Magnetic Declination

7TH	**1ST**	Public Land Survey System
	2ND	Field Notes
	3RD	Revision of class and question answer session
		BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION:
	4TH	Aerial Photography: Film, Focal Length, Scale
	5TH	Types of Aerial Photographs (Oblique, Straight)
8TH	**1ST**	Photogrammetry: Classification of Photogrammetry
	2ND	Aerial Photogrammetry & Terrestrial Photogrammetry
	3RD	Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform
	4TH	Control Survey, Geometric Distortion in Imagery, Application of Imagery and its support data Orientation and Triangulation Stereo
	5TH	Scopic Measurement: X-parallax & Y-parallax
9TH	**1ST**	DTM/DEM Generation, Ortho Image Generation
		MODERN SURVEYING METHODS
	2ND	Principles, features and use of (i)Micro-optic Theodolite, digital Theodolite
	3RD	Working principles of a Total Station
	4TH	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)
	5TH	Total Station position using trigonometry and triangulation
10TH	**1ST**	Total Station position using triangulation
	2ND	Revision of class and question answer session
		BASICS ON GPS & DGPS AND ETS:
	3RD	GPS:-Global Positioning: Working Principle of GPS,GPS Signals, Errors of GPS, Positioning Methods
	4TH	DGPS:-Differential Global Positioning System: Base Station Setup, Rover GPS Setup
	5TH	DGPS: Download, Post-Process and Export GPS data, Sequence to download GPS data from flash cards
11TH	**1ST**	DGPS: Sequence to Post-Process GPS data, Sequence to export post process GPS data, Sequence to export GPS Time tags to file
	2ND	ETS:- Electronic Total Station- Distance Measurement, Angle Measurement
	3RD	ETS:- Electronic Total Station- Levelling, Determining position
	4TH	ETS:- Electronic Total Station- Reference networks, Errors and Accuracy
	5TH	Revision of class and question answer session
		BASICS OF GIS AND MAP PREPARATIO USING GIS
12TH	**1ST**	Components of GIS, Integration of Spatial and Attribute Information
	2ND	Three Views of Information System: Data base or Table View, Map View and Model View
	3RD	Spatial Data Model
	4TH	Attribute Data Management and Metadata Concept
	5TH	Prepare data and adding to Arc Map.
13TH	**1ST**	Organizing data as layers.
	2ND	Modern construction equipments for roads.
	3RD	Editing the layers.

	4TH	Switching to Layout View.
	5TH	Switching to Layout View.
14TH	**1ST**	Removing Borders.
	2ND	Adding and editing map information.
	3RD	Finalize the map
	4TH	Revision of class and question answer session
	5TH	Revision of class and question answer session
15TH	**1ST**	Revision of class and question answer session
	2ND	Revision of class and question answer session
	3RD	Revision of class and question answer session
	4TH	Revision of class and question answer session
	5TH	Revision of class and question answer session