Department of Civil Engineering

Government Polytechnic Sundernagar Distt Mandi (H.P) -175018

Lesson Plan for Basic Surveying (Theory) (Semester- 3rd) Session: (August- Dcember, 2025)				
S.No	MONTH	WEEK	CONTENTS	REMARKS
1	August	2	**Unit –1 Overview and Classification of Survey** Survey- Purpose and Use. Types of surveying- Primary and Secondary, Classification: Plane, Geodetic, Cadastral, Hydrographic, Photogrammetry and Aerial.	
		3	Principles of Surveying. Scales: Engineer's scale, Representative Fraction (RF) and diagonal scale.	
		4	**Unit– 2 Chain Surveying** Instruments used in chain survey: Metric Chain, Tapes, Arrow, ranging rod, Line ranger, Offset rod, Open cross staff, Optical square.	
		5	Chain survey Station, Base line, Check line, Tie line, Offset, Tie station. Ranging: Direct and Indirect Ranging.	
2	September	1	Methods of Chaining, obstacles in chaining,	
		2	Errors in length: Instrumental error, personal error, error due to natural cause, random error. **Class Test - 1 as per academic calender.**	
		3	Principles of triangulation. Types of offsets: Perpendicular and Oblique. Conventional Signs, Recording of measurements in a field book.	
		4	**Unit– 3 Compass Traverse Survey** Compass Traversing- open, closed. Technical Terms: Geographic/ True Magnetic Meridians and Bearings	
		5	Whole Circle Bearing system and Reduced Bearing system and examples on conversion of given bearing to another bearing (from one form to another)	
3	October	1	Fore Bearing and Back Bearing, Calculation of internal and external angles from bearings at a station, Dip of Magnetic needle, Magnetic Declination.	
		2	Components of Prismatic Compass and their Functions, Methods of using Prismatic Compass- Temporary adjustments and observing bearings.	
		3	Local attraction, Methods of correction of observed bearings - Correction at station and correction to included angles. **Class Test- 2 as per academic calender.**	
		4	Unit– 4 Leveling and Contouring Basic terminologies: Level surfaces, Horizontal and vertical surfaces, Datum, Benchmarks- GTS, Permanent, Arbitrary and Temporary	
		5	Reduced Level, Rise, Fall, Line of collimation, Station, Back sight, Fore sight, Intermediate sight, Change point, Height of instruments.Level and its fundamental axes, Temporary adjustments of Level. Types of levels: Dumpy, Tilting, Auto level, Digital level, Components of Dumpy Level.	

4	November	2	**House Test as per academic calender.**	
		3	Types of Levelling Staff: Self-reading staff and Target staff. Reduction of level by Line of collimation and Rise and Fall Method. Levelling Types: Simple, Differential, Fly, Profile and Reciprocal Levelling.	
		4	Contour, contour intervals, horizontal equivalent. Uses of contour maps, Characteristics of contours, Methods of Contouring: Direct and indirect	
		5	Unit– 5 Measurement of Area and Volume Components and use of Digital planimeter. Measurement of area using digital planimeter.Measurement of volume of reservoir from contour map.	

Note:- The Lesson Plan is tentative, subject to availaibility of time,students & faculty.

Signature of Teacher
(Er Pratik Gupta)

Signature of H.O.D
(Er Anita Joshi)