

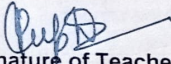
Department of Civil Engineering  
Government Polytechnic Sundernagar Distt Mandi (H.P) -175018

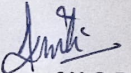
Lesson Plan for Basic Surveying (Theory) (Semester- 3rd ) Session: (August- Dcember, 2025)				
S.N o	MONTH	WEEK	CONTENTS	REMARKS
1	August	2	<b>Unit –1 Overview and Classification of Survey</b> Survey- Purpose and Use. Types of surveying- Primary and Secondary, Classification: Plane, Geodetic, Cadastral, Hydrographic, Photogrammetry and Aerial.	
		3	Principles of Surveying. Scales: Engineer's scale, Representative Fraction (RF) and diagonal scale.	
		4	<b>Unit– 2 Chain Surveying</b> 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. <b>Class Test - 1 as per academic calender.</b>	
		3	Principles of triangulation.. Types of offsets: Perpendicular and Oblique. Conventional Signs, Recording of measurements in a field book.	
		4	<b>Unit– 3 Compass Traverse Survey</b> 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. <b>Class Test- 2 as per academic calender.</b>	
		4	<b>Unit– 4 Leveling and Contouring</b> 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 availability of time, students & faculty.

  
**Signature of Teacher**  
 (Er Pratik Gupta)

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