

Department of Civil Engineering.
Govt. Polytechnic for Women Rehan
Distt. – Kangra (H.P.) - 176022



LESSON PLAN

Program Name	Civil Engineering
Subject Name	Advanced Surveying
Subject Code	CE-4002
Semester	4 th
Subject Teacher Name	Amit Thakur

Evaluation Scheme

Sr. No.	Subject Name	Study scheme (Hrs/Week)		Marks in Evaluation Scheme					
				Internal Assessment			External Assessment		
		Th	DCS	Th	Pr	Total	Th	Pr	Total
1.	Advanced Surveying	3	-	40	-	40	60	-	60

Reference Books

1. Punmia, B.C, Jain, Ashok Kumar; Jain, Arun Kumar, Surveying Vol. I and Surveying
2. Duggal, S. K., Survey I and Survey II
3. Kanetkar, T. P.; Kulkarni, S. V., Surveying and Levelling Part I and II

Course Outcomes (COs)

CO – 1	To know methods of plane surveying and Theodolite surveying and their uses
CO – 2	To learn tacheometric surveying and curve setting
CO – 3	To understand the principles of Electronic Distance Measurement equipment and Total station and their use.
CO – 4	To know the concept of remote sensing, GPS, and GIS

Teaching Plan

	Name of Topic	Proposed Date	Actual Date	Remarks
Unit – 1 Plane Table Surveying	Principles of plane table survey.	27/01/2026		
	Accessories of plane table and their use,	28/01/2026 29/01/2026		
	Telescopic alidade	03/02/2026		
	Setting of plane table; Orientation of plane table - Back sighting and Magnetic meridian method	04/02/2026 05/02/2026		
	Methods of plane table surveys- Radiation, Intersection and Traversing	10/02/2026 11/02/2026		
	Merits and demerits of plane table survey.	12/02/2026		
Unit– 2 Theodolite Surveying	Types and uses of Theodolite	17/02/2026		
	Components of transit Theodolite and their functions, Reading the Vernier of transit Theodolite.	18/02/2026 19/02/2026		
	Technical terms- Swinging, Transiting, Face left, Face right.	24/02/2026		
	Fundamental axes of transit Theodolite and their relationship	25/02/2026		
	Temporary adjustment of transit Theodolite.	26/02/2026		

Unit-3
Tacheometric
surveying and
Curve setting

Measurement of horizontal angle- Direct and Repetition method, Errors eliminated by method of repetition.	03/03/2026 05/03/2026		
Measurement of magnetic bearing of a line, Prolonging and ranging a line, deflection angle.	10/03/2026		
Measurement of vertical Angle.	11/03/2026		
Theodolite traversing by Included angle method and Deflection angle method.	12/03/2026		
Traverse Computation-Latitude, Departure. Consecutive coordinates, independent coordinates	17/03/2026		
Principles of Tacheometry, Tacheometer, and its component parts, Anallatic lens.	19/03/2026		
Tacheometric formula for horizontal distance with telescope horizontal and staff vertical.	24/03/2026		
Field method for determining constants of tacheometer,	25/03/2026		
Determining horizontal and vertical distances with tacheometer by fixed hair method and staff held vertical,	31/03/2026		
Limitations of tacheometry	01/04/2026		
Types of curves used in roads. Designation of curves.	02/04/2026		
Setting simple circular curve by offsets from long chord and Rankine's method of deflection angles.	07/04/2026 08/04/2026		

Unit- 4 Advanced surveying equipment	Principle of Electronic Distance Meter (EDM), its component parts and their Functions, use of EDM	09/04/2026 16/04/2026		
	Use of micro-optic Theodolite and Electronic Digital Theodolite.	22/04/2026 23/04/2026		
	Use of Total Station, Use of function keys	28/04/2026 29/04/2026		
Unit- 5 Remote sensing, GPS and GIS	Remote Sensing – Overview, Remote sensing system	30/04/2026		
	Applications of remote sensing in Civil engineering, land use / Land cover, mapping, disaster management.	05/05/2026 06/05/2026		
	Use of Global Positioning System (G.P.S.) instruments.	07/05/2026		
	Geographic Information System (GIS): Overview, Components, Applications, Software for GIS.	19/05/2026 20/05/2026 21/05/2026		
	Introduction to Drone Surveying.	26/05/2026 28/05/2026		

Assignments


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Assignments

Assignment No	Contents of Syllabus Covered	Proposed Date	Actual Date	Remarks
A-1	Unit-1& Unit-2	12/03/2026		
A-2	Unit3 & Unit-4	22/04/2026		
A-3	Unit-5	24/05/2026		

House Test/Class Test

Name of test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
Class Test -1	Unit-1 & Unit-2	As per HPTSB Academic Schedule		
Class Test -2	Unit-3&unit 4			
House Test - 1	Unit-1, Unit-2 Unit-3 and Unit4 &Unit-5			


Amit Thakur
Signature of Teacher


(Signature of (HOD))

Approved
Principal
Govt. Polytechnic for Women
Rehan Distt. Kangra (H.P.)