

Name of the Faculty		Babita Devi		
Discipline		Civil Engg.		
Semester		4th		
Subject		Surveying-II		
Lesson Plan Duration		16 weeks		
**Work load (Lecture / Practical) per week(in hours): Lectures-03, practicals -06				
Week	Theory		Practical Day	Topic
	Lecture Day	Topic		
1st	1 st	UNIT 1 Concept of contours, purpose of contouring, contour interval and horizontal equivalent,		i) Preparing a contour plan by radial line method by the use of a Tangent Clinometer/Tachometer
	2 nd	factors effecting contour interval, characteristics of contours,		
	3 rd	methods of contouring: Direct and indirect,		
2nd	4 th	use of stadia measurements in contour survey, interpolation of contours		ii) Preparing a contour plan by method of squares
	5 th	use of contour map, Drawing cross section from a contour map;		
	6 th	marking alignment of a road, railway and a canal on a contour map		
3rd	7 th	computation of earth work		iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections.
	8 th	reservoir capacity from a contour map		
	9 th	UNIT-2 Theodolite Surveying concept of transiting, swinging, face left, face right and changing face;		
4th	10 th	axes of a theodolite and their relation; temporary adjustments of a transit theodolite		i) Taking out the Theodilite, mounting on the tripod and placing it back in the box ii) Study of a transit vernier theodolite; temporary adjustments of theodolite
	11 th	Working of a transit vernier theodolite,		
	12 th	measurement of horizontal and vertical angles		
5th	13 th	Prolonging a line (forward and backward measurement of bearing of a line		iii) Reading the vernier and working out the least count, measurement of horizontal angles by repetition and reiteration methods iv) Measurement of vertical angles and use of tachometric tables
	14 th	traversing by included angles and deflection angle method;		
	15 th	traversing by stadia measurement,		
6th	16 th	theodolite triangulation		v) Measurement of magnetic bearing of a line vi) Running a closed traverse with a theodolite (at least five sides) and its plotting
	17 th	concept of coordinate and solution of omitted measurements (one side affected),		
	18 th	errors in theodolite survey		

7th	19th	precautions taken to minimize them;
	20th	limits of precision in theodolite traversing
	21st	UNIT-3 Tacho-metric surveying, Tachometry
8th	22nd	Instruments to be used in tachometry
	23rd	methods of tachometry,
	24th	stadia system of tachometry,
9th	25th	general principles of stadia tachometry,
	26th	examples of stadia tachometry
	27th	Numerical problems
10th	28th	Numerical problems
	29th	UNIT-4 Simple Circular Curve:Need and definition of a simple circular curve; Elements of simple circular curve
	30th	Degree of the curve, radius of the curve, tangent length, point of intersection (Apex point),
11th	31st	long chord deflection angle, Apex distance and Mid-ordinate.
	32nd	Setting out of simple circular curve:by linear measurement only
	33rd	By linear measurements only:
12th	34th	offsets from the tangent
	35th	Successive bisection of arcs,Offsets from the chord produced
	36th	by tangential angle using theodolite
13th	37th	transition curves:need (centrifugal force and super elevation)
	38th	; length of transition curve for roads; by cubic parabola; calculation of offsets for a transition curve;
	39th	setting out of a transition curve by tangential offsets only
14th	40th	Vertical curve ,
	41st	Setting out of a vertical curve
	42nd	angent point, length of curve
15th	43rd	requirements of transition curve
	44th	UNIT-5 Introduction to the use of Modern Surveying equipment and techniques such as:total station
	45th	EDM Or distomat
16th	46th	planimeter (digitai)
	47th	Introduction to remote sensing and GPS
	48th	auto level, digital theodolite

vii) Height of objects with and without accessible bases
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i) Setting out of a simple circular curve with given data by the following methods a) Offsets from the chords produced
b) One theodolite method
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Minor instruments:
Demonstration and use of minor instruments Tangent Clinometer, Pantagraph, Abney level etc.
Use of planimeter for computing areas
Demonstration of digital instruments through field visits to Survey of India and other government agencies.