

Civil Engg Department					
Sem -IV Lesson Plan					
Subject: Surveying					
** Work Load (Lecture/Practical) per week (in hours): Lectures-02			Practicals		
MARCH	Week 1	1	1 Concept of contours, purpose of contouring, contour interval and horizontal equivalent, 1.2 factors effecting contour interval, characteristics of contours	06 hrs	i. Contouring: i) Preparing a contour plan by radial line method by the use of a Tangent Clinometer/Tachometer
		2	1.3 methods of contouring: Direct and indirect, 1.4 use of stadia measurements in contour survey, interpolation of contours; 1		
		3	.5 use of contour map, Drawing cross section from a contour map		
	Week 2	1	1.6 marking alignment of a road, railway and a canal on a contour map,	06 hrs	ii) Preparing a contour plan by method of squares iii) Preparing a contour plan of a Road/Railway track/Canal by taking cross sections
		2	1.7 computation of earth work and reservoir capacity from a contour map		
		3	2. Theodolite Surveying: (12 Hours) 2.1 concept of transiting, swinging, face left, face right and changing face;		
	Week 3	1	2.2 axes of a theodolite and their relation; temporary adjustments of a transit theodolite; Working of a transit vernier theodolite	06 hrs	Theodolite: i) Taking out the theodolite, mounting on the tripod and placing it back in the box ii) Study of a transit vernier theodolite; temporary adjustments of theodolite iii) Reading the vernier and working out the least count, measurement of horizontal angles by transit and theodolite methods
		2	2.3 measurement of horizontal and vertical angles. 2.4 Prolonging a line (forward and backward		
		3	2.5 measurement of bearing of a line;		
	Week 4	1	2.6 traversing by included angles and deflection angle method; traversing by stadia measurement, theodolite triangulation, plotting a traverse	06 hrs	iv) Measurement of vertical angles and use of tachometric tables v) Measurement of magnetic bearing of a line vi) Running a closed traverse with a theodolite (at least five sides) and its plotting vii) Height of objects with and without accessible bases
		2	2.6 traversing by included angles and deflection angle method; traversing by stadia measurement, theodolite triangulation, plotting a traverse		
		3	2.7 concept of coordinate and solution of omitted measurements (one side affected),		
APRIL	Week 1	1	2.8 errors in theodolite survey and precautions taken to minimize them; limits of precision in theodolite traversing		
		2	2.9 Height of objects – accessible and non-accessible bases		
		3	Sessional-1		
	Week 2	2	Sessional-1		
		3	Sessional-1		
		4	Sessional-1		
	Week 3	1	Sessional-1		
		2	. Tacho-metric surveying - 3.1 Tachometry, Instruments to be used in tachometry	06 hrs	Curves 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
		3	3.2 methods of tachometry		
	Week 4	4	stadia system of tachometry		
MAY		1	3.3 general principles of stadia tachometry, examples of stadia tachometry and Numerical problems	06 hrs	
		2	4. Curves: 4.1 Simple Circular Curve: * Need and definition of a simple circular curve;		
	Week1	1	Elements of simple circular curve - Degree of the curve, radius of the curve		Demonstration and use of minor instruments like Ceylon Ghat Tracer, Tangent Clinometer, Pantagraph, Abney level etc.
		2	tangent length, point of intersection (Apex point), tangent point		
		3	, length of curve, long chord deflection angle, Apex distance and Mid-ordinate		
	Week2	1	Setting out of simple circular curve: a) By linear measurements only: - Offsets from the tangent -	06 hrs	ii) Use of planimeter for computing areas
		2	Successive bisection of arcs - Offsets from the chord produced b) By tangential angles using a theodolite		
		3	4.2 Transition Curve: Need (centrifugal force and super elevation) and definition of transition curve; requirements of transition curve;		
	Week3	1	length of transition curve for roads; by cubic parabola; calculation of offsets for a transition curve; setting out of a transition curve by tangential offsets only		
		2	4.3 Vertical curve Setting out of a vertical curve		
		3	Sessional-2		
	Week4	1	Sessional-2		
		2	Sessional-2		
		3	Sessional-2		
JUNE	Week 1	1	Sessional-2		
		2	5. Introduction to the use of Modern Surveying equipment	06 hrs	Demonstration of digital instruments Periodic field visits to Survey of India and other government agencies.
		3	EDM or Distomat b) Planimeter (Digital)		
	Week2	1	c) Total station d) Introduction to remote sensing and GPS		
		2	e) Auto level f) Digital theodolite		
		3	Sessional-3		
	Week 3	1	Sessional-3		
		2	Sessional-3		
		3	Sessional-3		
	Week 4	1	Sessional-3	06 hrs	To plot an area with he help of Total Station
	2	Revision			
	3	Revision			