

Panipat Institute of Engineering & Technology

Department of Civil Engineering

For Lecture's in **B. Tech. Civil Engineering IIIrd Semester**

Course No.	Title of the Course	Course Structure	
CE-205A	Survey and Geomatics	L-T-P	3-0-0
COURSE OUTCOMES (CO)			
CO1	Understanding the basic concept of survey & theodolite.		
CO2	To understand about the levelling, contour & theodolite.		
CO3	To understand about the curves & Total station.		
CO4	Understanding about the remote sensing & Photogrammetry.		
UNIT NO`	Topics To Be Covered	Lecture Nos	
I	Introduction to Surveying	01	
	Fundamental Principles of Surveying	2-3	
	Survey Stations, Survey Lines – Ranging	4	
	Methods of traversing	5	
	instruments for measurement of angles-prismatic and surveyor's compass	6-7	
	bearing of lines, local attraction	8	
	Triangulation and Trilateration	9	
	Theodolites Survey: Instruments, temporary adjustment of theodolite	10	
	measurement of angles, repetition and reiteration method	11	
	traverse surveying with theodolite, checks in traversing, adjustment of closed traverse	12-13	
	Intervisibility of Height and Distances	14	
	Trigonometric Levelling, Axis Signal Corrections	15	
II	Levelling: Definition of terms used in levelling	16	
	types of levels and staff, temporary adjustment of levels	17	
	principles of leveling, reduction of levels	18	
	booking of staff readings, examples	19-20	
	Contours: Definition, representation of reliefs, horizontal equivalent, contour interval	21	
	characteristics of contours, methods of contouring	22	
	contour gradient, uses of contours maps	23	
	Plane table, methods of plane table surveying	24	
, radiation, intersection, traversing and resection	25		
two point and three point problems.	26		
III	Classification of curves , elements of simple circular curve	27	
	location of tangent points-chain and tape methods, instrumental methods	28	
	examples of simple curves. Transition Curves-Length and types of transition curves	29	
	length of combined curve, examples	30	
	Vertical Curves: Necessity and types of vertical curves	31	
	Principal of Electronic Distance Measurement	32	

	Modulation, Types of EDM Instruments.	33
	Working principle and survey with total station.	34
IV	Elements of Photogrammetry: Introduction: types of photographs	35
	types of aerial photographs, aerial camera and height displacements in vertical photographs,	36
	stereoscopic vision and stereoscopies	37
	height determination from parallax measurement, flight planning,	38
	Introduction of remote sensing and its systems: Concept of G.I.S and G.P.S.	39
	Basic Components, data input, storage & output.	40-41

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