GOVT. POLYTECHNIC SIRSA

NAME OF FACULTY : **SH. BALVINDER KAMBOJ**
Discipline : **Civil Engg.** **L: 3 P:5**
Semester : **3rd**
Subject : **Surveying**
Lesson Plan Duration : **15 weeks (From 7 Sept. to 24 Dec 2020)**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1	1.	1 Introduction: 1.1 Basic principles of surveying	1	Brief Introduction To Practicals.
	2	1.2 Concept and purpose of surveying, measurements-linear and angular, units of measurements	2	I. Chain surveying i) a) Ranging a line b) Chaining a line and recording in the field book.
	3	1.3 Instruments used for taking these measurements, classification based on surveying instruments		
2.	1.	2. Chain surveying: 2.1.Purpose and principles of Chain Surveying	1.	c) Taking offsets - perpendicular and oblique (with a tape only) d) Setting out right angle with a tape
	2.	2.2 Introduction, advantages and disadvantages	2.	ii) Chaining of a line involving reciprocal ranging
	3	2.3 Direct and indirect ranging, offsets and recording of field notes		
3.	1.	2.4 Obstacles in Chain Surveying	1.	iii)Chaining a line involving obstacles to ranging
	2.	2.5Errors in Chain Surveying and their correction		iv)Chain Survey of a
	3	3. Compass surveying: 3.1Purpose of compass		

		surveying. Use of prismatic compass: Setting and taking observations		
4.	1.	3.2 Concept of following with simple numerical problems: a) Meridian - Magnetic and true, Arbitrary	1.	III Compass Surveying: i) a) Study of prismatic compass
	2.	b) Bearing - Magnetic, True and Arbitrary c)Whole circle bearing and reduced bearing	2.	b) Setting the compass and taking observations
	3	d) Fore and back bearing e) Magnetic dip and declination		
5.	1.	REVISION	1	c) Measuring angles between the lines meeting at a point
	2.	FIRST SESSIONAL	2.	III. Levelling: i) a) Study of dumpy level and levelling staff
	3	3.3 Local attraction - causes, detection		
6.	1.	errors and corrections	1.	c) Taking staff readings on different stations from the single setting and finding differences of level between them
	2.	problems on local attraction	2.	ii) a) To find out difference of level between two distant points by shifting the
	3	DO		
7.	1	magnetic declination and calculation of included angles in a compass traverse (Simple Numerical Problems)	1.	iii) Longitudinal and cross sectioning of a road/railway/canal
	2.	4. Levelling: 4.1 Purpose of levelling, concept of a level surface, horizontal surface, vertical surface, datum, reduced level	2.	iv) Setting a gradient by dumpy and auto-level

		and bench marks		
	3	DO		
8	1.	4.2Identification of various parts of Dumpy level and use of DuŵpLJ le|el, EŶgiŶeeŕle|el, Auto level: advantages and disadvantages, use of auto level.	1.	IV.Plane Table Surveying: i) a) Study of the plane table survey equipment
	2.	4.3 Concepts of line of collimation, axis of the bubble tube, axis of the telescope and vertical axis	2.	b) Setting the plane table
	3	4.4Levelling staff: single piece, folding, invar precision staff, telescopic		
9.	1.	4.5Temporary adjustment and permanent adjustment of dumpy level by two peg method.	1.	c) Marking the North direction
	2.	4.6 Concept of back sight, foresight, intermediate sight, change point, to determine reduce levels	2.	d) Plotting a few points by radiation method
	3	4.7Level book and reduction of levels by 4.7.1Height of collimation method and 4.7.2 Rise and fall method		
	1.	REVISION	1.	ii) a) Orientation by - Trough compass - Back sighting
	2.	SECOND SESSIONAL		b)Plotting few points by

10.	3	4.8 Arithmetic checks, problem on reduction of levels, fly levelling, check leveling and profile levelling (L-section and X-section), errors in levelling, permissible limits, reciprocal leveling. Numerical problems.	2.	intersection, radiation and resection method
11.	1.	4.9 Computations of Areas of regular figures and irregular figures. Siŵpsoŷs rule: prisŵatiÐ formula and graphical method use of planimeter for computation of areas, numerical problems	1.	iii) Traversing an area with a plane table (at least five lines)
	2.	5. Plane Table Surveying 5.1Purpose of plane table surveying, equipment used in plane table survey:	2.	V.Layout of Buildings (from given drawing of two room residential building) by use of surveying instruments
	3	5.2 Setting of a plane table: (a) Centering (b) Levelling		
12.	1.	(c) Orientation	1.	REVISION
	2.	5.3 Methods of plane table surveying (a)Radiation, (b) Intersection	2.	
	3	(c) Traversing (d) Resection		REVISION
	1.	5.4 Concept of Two point and Three point problems (Concept only)	1.	REVISION

13.	2.	5.5Errors in plane table survey and precautions to control them. Testing and adjustment of plane table and alidade	2.	
	3	REVISION		REVISION
14.	1.	THIRD SESSIONAL	1.	REVISION
	2.	PREPARATION FOR FINAL EXAM	2.	
	3	DO		REVISION
15.	1.	DO	1.	REVISION
	2	DO	2	
	3	DO	.	REVISION