

Lesson Plan: Session 2022-23 (Summer)

(7 periods per week, total 105 periods in SEM)

DISCIPLINE: Civil Engineering	SEMESTER: 4 th Semester	NAME OF THE TEACHING FACULTY: P Sankar Rao PTGF (Civil Engg.)
SUBJECT: Land Survey Practice-1	NO. OF DAYS/PER WEEK CLASSES ALLOTTED: 7	SEMESTER FROM DATE: 14.02.2023 TO DATE: _____ NO. OF WEEKS: 15
Week	Class Day	Topics
1 st	1. Introduction to surveying, linear measurements	
	1 ST	1.1 Testing and adjusting of a metric chain. 1.2 Measurement of distance between two points (more than 2 chain lengths apart) with chain including direct ranging.
	2 ND	1.3 Setting out different types of triangles, given the lengths of sides with chain and tape.
	3 RD	1.4 Measurement of distance between two points by chaining across a sloped ground using stepping method and a clinometer
	4 TH	1.5 Measurement of distance by chaining across a obstacles on the chain line i) a pond ii) a building iii) a stream/ river (in the event of non-availability of stream / river, a pond or lake may be taken, considering that chaining around the same is not possible.
	5 th	1.6 Setting perpendicular offsets to various objects (at least 3) from a chain line using-(1) tape, (2) cross-staff, (3) optical square and comparing the accuracy of the 3 methods 1.7 Setting oblique offsets to objects (at least 3) from a chain using tape
	2. Angular Measurement and Compass Surveying	
	6 th	2.1 Testing and adjustment of Prismatic compass and Surveyor's compass
	7 th	2.1 Testing and adjustment of Prismatic compass and Surveyor's compass
	2 nd	1 ST
2 ND		2.2 Measurement of bearings of lines (at least 3 lines) and determination of included angles using Prismatic compass and Surveyor's compass.
3 RD		2.3 Setting out triangles (at least 2) with compass, given the length and bearing of one side and included angles.
4 TH		2.3 Setting out triangles (at least 2) with compass, given the length and bearing of one side and included angles.
5 th		2.4 Setting out a closed traverse of 5 sides, using prismatic compass,

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P. Sankar Rao
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		given bearing of one line and included angles and lengths of sides.
	6 th	2.4 Setting out a closed traverse of 5 sides, using prismatic compass, given bearing of one line and included angles and lengths of sides.
	7 th	2.5 Conducting chain and compass traverse surveying in a given plot of area (2plots) and recording data in the field book. (5 to 6 students/groups)
3 rd	1 ST	2.5 Conducting chain and compass traverse surveying in a given plot of area (2plots) and recording data in the field book. (5 to 6 students/groups)
	3. Map Reading Cadastral Maps & Nomenclature	
	2 ND	3.1 Study of direction, Scale, Grid Reference and Grid Square 3.2 Study of Signs and Symbols
	3 RD	3.3 Cadastral Map Preparation Methodology
	4 TH	3.3 Cadastral Map Preparation Methodology
	5 th	3.4 Unique identification number of parcel
	6 th	3.4 Unique identification number of parcel
	7 th	3.5 Positions of existing Control Points and its types
4 th	1 ST	3.5 Positions of existing Control Points and its types
	4. Plane Table Surveying	
	2 ND	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
	3 RD	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
	4 TH	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
	5 th	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.
	6 th	4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method.

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8/2/23

P. Sankar Rao
08.02.2023

	7 th	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects)
5 th	1 ST	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects)
	2 ND	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects)
	3 RD	4.2 Conducting Plane Table surveying in a given plot of area by traversing (Atleast a 5-sided traverse and locating the objects)
	4 TH	4.3 Plane table surveying by Resection method (two point & three point problem method)
	5 th	4.3 Plane table surveying by Resection method (two point & three point problem method)
	6 th	4.3 Plane table surveying by Resection method (two point & three point problem method)
	7 th	4.3 Plane table surveying by Resection method (two point & three point problem method)
6 th	5. Theodolite Traversing	
	1 ST	5.1 Measurement of horizontal angles (3nos.) by repetition and reiteration method and compare two methods
	2 ND	5.1 Measurement of horizontal angles (3nos.) by repetition and reiteration method and compare two methods
	3 RD	5.2 Prolonging a given straight line with the help of a theodolite
	4 TH	5.2 Prolonging a given straight line with the help of a theodolite
	5 th	5.3 Determination of magnetic bearing of 3 given straight lines Setting out a closed traverse with 6 sides and entering the field data
	6 th	5.3 Determination of magnetic bearing of 3 given straight lines Setting out a closed traverse with 6 sides and entering the field data
	7 th	5.4 Plotting the traverse from exercise 4.1 and checking the error of closure
8 th	1 ST	5.4 Plotting the traverse from exercise 4.1 and checking the error of closure
	2 ND	5.5 Setting out an open traverse with 5 sides and entering the field data
	3 RD	5.5 Setting out an open traverse with 5 sides and entering the field data
	6. Leveling and Contouring	

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	4 TH	6.1 Making temporary adjustments of Levels
	5 th	6.2 Determining Reduced Levels of five given points taking staff readings with Levels.
	6 th	6.2 Determining Reduced Levels of five given points taking staff readings with Levels.
	7 th	6.3 Determining the difference of levels between two points (3 pairs of points / group) by taking staff readings form single set up of level, recording the readings in level book and application of Arithmetic check. (At least 3 change points must be covered)
7 th	1 ST	6.3 Determining the difference of levels between two points (3 pairs of points / group) by taking staff readings form single set up of level, recording the readings in level book and application of Arithmetic check. (At least 3 change points must be covered)
	2 ND	6.4 Conduct Fly Leveling (Compound) between two distant points with respect to R.L. of a given B.M. and reduction of levels by both height of collimation and rise & fall method and applying Arithmetic check. (At least 3 change points must be covered)
	3 RD	6.4 Conduct Fly Leveling (Compound) between two distant points with respect to R.L. of a given B.M. and reduction of levels by both height of collimation and rise & fall method and applying Arithmetic check. (At least 3 change points must be covered)
	4 TH	6.5 Conduct profile leveling along the given alignment for a road / canal for 150m length, taking L. S. at every 15m and C. S. at 1m & 3m apart on both sides at every 30m interval and recording the data in level book and applying arithmetical check.
	5 th	6.6 Locating contour points in the given area by direct method / indirect method
	6 th	6.6 Locating contour points in the given area by direct method / indirect method
	7 th	6.7 Conducting block level survey in the given area 6.8 Plotting and drawing contour map of a given area by radial method
9 th	1 ST	6.9 Map Interpretation: Interpret Human and Economic Activities

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P. Sankar Reddy
28.02.2023

		(i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making
	7. Basics of Aerial Photography	
	2 ND	7.1 Film
	3 RD	7.1 Film
	4 TH	7.1 Film
	5 th	7.2. Focal Length 7.3. Scale
	6 th	7.2. Focal Length 7.3. Scale
	7 th	7.2. Focal Length 7.3. Scale
10 th	1 ST	7.4. Types of Aerial Photographs (Oblique, Straight)
	2 ND	7.4. Types of Aerial Photographs (Oblique, Straight)
	3 RD	7.4. Types of Aerial Photographs (Oblique, Straight)
	8. Basics of Photogrammetry, DEM and Ortho Image generation	
	4 TH	Photogrammetry: 8.1 Classification of Photogrammetry
	5 th	8.1 Classification of Photogrammetry
	6 th	8.1 Classification of Photogrammetry
11 th	7 th	8.2 Aerial Photogrammetry
	1 ST	8.2 Aerial Photogrammetry
	2 ND	8.2 Aerial Photogrammetry
	3 RD	8.3 Terrestrial Photogrammetry
	4 TH	8.3 Terrestrial Photogrammetry
	5 th	8.3 Terrestrial Photogrammetry
	6 th	Photogrammetry Process: 8.4 Acquisition of Imagery using aerial and satellite platform
7 th	8.4 Acquisition of Imagery using aerial and satellite platform	

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08.02.2023

12 th	1 ST	8.4 Acquisition of Imagery using aerial and satellite platform
	2 ND	8.5 Control Survey
	3 RD	8.5 Control Survey
	4 TH	8.5 Control Survey
	5 th	8.6 Geometric Distortion in Imagery
	6 th	8.6 Geometric Distortion in Imagery
	7 th	8.6 Geometric Distortion in Imagery
13 th	1 ST	8.7 Application of Imagery and its support data
	2 ND	8.7 Application of Imagery and its support data
	3 RD	8.7 Application of Imagery and its support data
	4 TH	8.8 Orientation and Triangulation
	5 th	8.8 Orientation and Triangulation
	6 th	8.8 Orientation and Triangulation
	7 th	8.9 Stereoscopic Measurement: X
14 th	1 ST	8.9 Stereoscopic Measurement: X
	2 ND	8.9 Stereoscopic Measurement: X
	3 RD	8.10 DTM/DEM Generation
	4 TH	8.10 DTM/DEM Generation
	5 th	8.10 DTM/DEM Generation
	6 th	8.11 Ortho Image Generation
	7 th	8.11 Ortho Image Generation
15 th	1 ST	8.11 Ortho Image Generation
	2 ND	8.11 Ortho Image Generation
	3 RD	8.11 Ortho Image Generation
	4 TH	
	5 th	
	6 th	
	7 th	

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