

Lesson Plan:

Session 2022-23 (Summer)

(5 periods per week, total 75 periods in SEM)

DISCIPLINE: Civil Engineering	SEMESTER: 6 th Semester	NAME OF THE TEACHING FACULTY: P Sankar Rao PTGF (Civil Engg.)
SUBJECT: Land Survey-2	NO. OF DAYS/PER WEEK CLASSES ALLOTTED:5	SEMESTER FROM DATE: 14.02.2023 TO DATE: _____ NO. OF WEEKS:15
Week	Class Day	Topics
1. TACHEOMETRY		
1 st	1 st	1.1 Principles, stadia constants determination
	2 nd	1.1 Principles, stadia constants determination
	3 rd	1.1 Principles, stadia constants determination
	4 th	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined
	5 th	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined
2 nd	1 st	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined
	2 nd	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined
	3 rd	1.3 Elevations and distances of staff stations – numerical problems
	4 th	1.3 Elevations and distances of staff stations – numerical problems
	2. CURVES	
	5 th	2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field
3 rd	1 st	2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field
	2 nd	2.2 Elements of circular curves, numerical problems
	3 rd	2.2 Elements of circular curves, numerical problems
	4 th	2.3 Preparation of curve table for setting out
	5 th	2.4 Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord, (ii)

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		successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles (No derivation)
4 th	1 st	2.4 Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord, (ii) successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles (No derivation)
	2 nd	2.5 Obstacles in curve ranging – point of intersection inaccessible
	3. BASICS ON SCALE AND BASICS OF MAP	
	3 rd	3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale 3.2 What is Map, Map Scale and Map Projections
	4 th	3.3 How Maps Convey Location and Extent
	5 th	3.3 How Maps Convey Location and Extent
5 th	1 st	3.4 How Maps Convey characteristics of features
	2 nd	3.4 How Maps Convey characteristics of features
	3 rd	3.5 How Maps Convey Spatial Relationship
	4 th	3.5.1 Classification of Maps 3.5.1 Physical Map 3.5.2 Topographic Map 3.5.3 Road Map
	5 th	3.5.1 Classification of Maps 3.5.4 Political Map 3.5.5 Economic & Resources Map 3.5.6 Thematic Map 3.5.7 Climate Map
4. SURVEY OF INDIA MAP SERIES		
6 th	1 st	4.1 Open Series map
	2 nd	4.2 Defense Series Map
	3 rd	4.2 Defense Series Map

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	4 th	4.3 Map Nomenclature 4.3.1 Quadrangle Name
	5 th	4.3.2 Latitude, Longitude, UTM's 4.3.4 Contour Lines,
7 th	1 st	4.3.2 Latitude, Longitude, UTM's 4.3.4 Contour Lines
	2 nd	4.3.5 Magnetic Declination
	3 rd	4.3.6 Public Land Survey System
	4 th	4.3.6 Public Land Survey System
	5 th	4.3.7 Field Notes
5. BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION		
8 th	1 st	5.1 Aerial Photography: 5.1.1 Film, Focal Length, Scale 5.1.2 Types of Aerial Photographs (Oblique, Straight)
	2 nd	5.1 Aerial Photography: 5.1.1 Film, Focal Length, Scale 5.1.2 Types of Aerial Photographs (Oblique, Straight)
	3 rd	5.2 Photogrammetry: 5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry 5.2.3 Terrestrial Photogrammetry
	4 th	5.2 Photogrammetry: 5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry 5.2.3 Terrestrial Photogrammetry
	5 th	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform 5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery
9 th	1 st	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform 5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery
	2 nd	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform 5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery
	3 rd	5.4 DTM/DEM Generation
	4 th	5.5 Ortho Image Generation
	5 th	5.2 5.5 Ortho Image Generation
6. MODERN SURVEYING METHODS		

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10 th	1 st	Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	2 nd	Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	3 rd	Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	4 th	Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	5 th	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
11 th	1 st	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
	2 nd	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
	3 rd	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation. 6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing,

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		easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
	4 th	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
	5 th	6.2 Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation.
	7. BASICS ON GPS & DGPS AND ETS	
12 th	1 st	7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals, 7.1.2 Errors of GPS,Positioning Methods
	2 nd	7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals, 7.1.2 Errors of GPS,Positioning Methods
	3 rd	7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup 7.2.2 Rover GPS Set up 7.2.3 Download, Post-Process and Export GPS data 7.2.4 Sequence to download GPS data from flashcards
	4 th	7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup 7.2.2 Rover GPS Set up 7.2.3 Download, Post-Process and Export GPS data 7.2.4 Sequence to download GPS data from flashcards
	5 th	7.2 DGPS: - Differential Global Positioning System 7.2.5 Sequence to Post-Process GPS data 7.2.6 Sequence to export post process GPS data 7.2.7 Sequence to export GPS Time tags

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		to file
13 th	1 st	7.2 DGPS: - Differential Global Positioning System 7.2.5 Sequence to Post-Process GPS data 7.2.6 Sequence to export post process GPS data 7.2.7 Sequence to export GPS Time tags to file
	2 nd	7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement 7.3.2 Angle Measurement 7.3.3 Leveling
	3 rd	7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement 7.3.2 Angle Measurement 7.3.3 Leveling
	4 th	7.3 ETS: - Electronic Total Station 7.3.4 Determining position 7.3.5 Reference networks 7.3.6 Errors and Accuracy
	5 th	7.3 ETS: - Electronic Total Station 7.3.4 Determining position 7.3.5 Reference networks 7.3.6 Errors and Accuracy
8. BASICS OF GIS AND MAP PREPARATION USING GIS		
14 th	1 st	8.1 Components of GIS, Integration of Spatial and Attribute Information 8.2 Three Views of Information System 8.2.1 Database or Table View, Map View and Model View
	2 nd	8.3 Spatial Data Model 8.4 Attribute Data Management and Metadata Concept
	3 rd	8.5 Prepare data and adding to Arc Map.
	4 th	8.6 Organizing data as layers.
	5 th	8.6 Organizing data as layers.
15 th	1 st	8.7 Editing the layers. 8.8 Switching to Layout View.
	2 nd	8.9 Change page orientation.

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		8.10 Removing Borders.
	3 rd	8.9 Change page orientation. 8.10 Removing Borders.
	4 th	8.11 Adding and editing map information.
	5 th	8.12 Finalize the map

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