

Academic lesson plan for 6th semester (summer 2022)

Name of teaching faculty: Soumya Ranjan Maharana

Discipline/Deptt: Civil Engg

Semester: 6th

Subject (Theory): Land Survey – II

No. of periods per week: 5

Total Periods: 75

End semester Exam: 80

Class test: 20

Total marks: 100

Week	Period	Unit/Chapter	Topics to be covered
1 st	1 st	1.1	Principles
	2 nd	1.1	stadia constants determination
	3 rd	1.1	stadia constants determination
	4 th	1.2	Stadia tacheometry with staff held vertical and with line of collimation horizontal
	5 th	1.2	Stadia tacheometry with staff held vertical and with line of collimation horizontal
2 nd	1 st	1.2	Stadia tacheometry with staff held vertical and with line of collimation inclined
	2 nd	1.3	Elevations and distances of staff stations – numerical problems
	3 rd	1.3	Elevations and distances of staff stations – numerical problems
	4 th	1.3	Elevations and distances of staff stations – numerical problems
	5 th	2.1	Compound, reverse and transition curve, Purpose
3 rd	1 st	2.1	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	2.3	Preparation of curve table for setting out
4 th	1 st	2.4 & 2.5	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
	2 nd	2.4	Setting out of circular curve by chain and tape and by instrument angular methods (iv) offsets from chord produced, (v) Rankine's method of tangent angles (No derivation)
	3 rd	2.5	Obstacles in curve ranging – point of intersection inaccessible
	4 th	3.1	Fractional or Ratio Scale, Linear Scale, Graphical Scale
	5 th	3.2	What is Map, Map Scale and Map Projections
5 th	1 st	3.3	How Maps Convey Location and Extent
	2 nd	3.4	How Maps Convey characteristics of features
	3 rd	3.4	How Maps Convey characteristics of features
	4 th	3.5	Classification of Maps
	5 th	3.5	Classification of Maps
6 th	1 st	3.5	Classification of Maps
	2 nd	4.1	Open Series map
	3 rd	4.1	Defense Series Map
	4 th	4.2	Map Nomenclature
	5 th	4.2	Quadrangle Name
7 th	1 st	4.3.1	Latitude, Longitude, UTM's
	2 nd	4.3.2	Contour Lines

	3 rd	4.3.3	Magnetic Declination
	4 th	4.3.4,4.3.5	Contour Lines and Magnetic Declination
	5 th	4.3.6	Public Land Survey System
8 th	1 st	4.3.7	Field Notes
	2 nd	5.1	Aerial Photography: 5.1.1 Film, Focal Length, Scale
	3 rd	5.1	Aerial Photography: 5.1.2 Types of Aerial Photographs (Oblique, Straight)
	4 th	5.2	Photogrammetry: 5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry
	5 th	5.2	Photogrammetry: 5.2.3 Terrestrial Photogrammetry
9 th	1 st	5.3	Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform 5.3.2 Control Survey
	2 nd	5.3	5.3.3 Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1 X
	3 rd	5.4	DTM/DEM Generation
	4 th	5.4	DTM/DEM Generation
	5 th	5.5	Ortho Image Generation
10 th	1 st	5.5	Ortho Image Generation
	2 nd	6.1	Principles, features and use of (i) Microo-optic theodolite
	3 rd	6.1	Principles, features and use of digital theodolite
	4 th	6.1	Principles, features and use of 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.
	4 th	7.1	GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals
	5 th	7.1	GPS: - 7.1.2 Errors of GPS,Positioning Methods
12 th	1 st	7.1	GPS: - 7.1.2 Errors of GPS,Positioning Methods
	2 nd	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
	3 rd	7.2	DGPS: 7.2.4 Sequence to download GPS data from flashcards 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
	4 th	7.2	DGPS: 7.2.4 Sequence to download GPS data from flashcards 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
	5 th	7.3	ETS: - Electronic Total Station 7.3.1
13 th	1 st	7.3	ETS: - Distance Measurement 7.3.2
	2 nd	7.3	ETS: - 7.3.3 Leveling
	3 rd	7.3	ETS: - 7.3.4 Determining position 7.3.5 Reference networks 7.3.6 Errors and Accuracy
	4 th	8.1	Components of GIS, Integration of Spatial and Attribute Information
	5 th	8.2	Three Views of Information System 8.2.1 Database or Table View, Map View and Model View
14 th	1 st	8.3	Spatial Data Model
	2 nd	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	8.7	Editing the layers.
15 th	1 st	8.8	Switching to Layout View.
	2 nd	8.9	Change page orientation.
	3 rd	8.10	Removing Borders.
	4 th	8.11	Adding and editing map information
	5 th	8.12	Finalize the map