

LESSON PLAN- SUMMER 2023

Discipline- Civil Engineering

Semester- 6th

Semester from date- 14.02.2023 to 23.05.2023

No of Weeks- 15

No of classes allotted(hours/week)-05

Total Period- 75

Subject- Land Surveying - II

Subject Code- 16.01

Name of the Teaching Faculty- Sudhashree Munda

WEEK	MONTH	DATE/ CLASS DAY	PERIOD AVAILABLE	TOPICS TO BE COVERED	
1 st	FEBRUARY	15.02.2023	2	TACHEOMETRY: (Only concepts; applications without derivation) 1.1 Principles, stadia constants determination	
		16.02.2023	1	1.2 Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	
2 nd		20.02.2023	2	1.3 Elevations and distances of staff stations - numerical problems	
		22.02.2023	2	CURVES : 2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field	
		23.02.2023	1	2.2 Elements of circular curves, numerical problems	
3 rd	MARCH	27.02.2023	2	2.3 Preparation of curve table for setting out	
		01.03.2023	2	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)	
		02.03.2023	1	2.5 Obstacles in curve ranging - point of intersection inaccessible.	
		03.03.2023		Monthly Class test-(February)	
		4 th	06.03.2023	2	BASICS ON SCALE AND BASICS OF MAP:
09.03.2023			1	3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale	
5 th		13.03.2023	2	3.2 What is Map, Map Scale and Map Projections	
		15.03.2023	2	3.3 How Maps Convey Location and Extent	
		16.03.2023	1	3.4 How Maps Convey characteristics of features	
6 th		20.03.2023	2	3.5 How Maps Convey Spatial Relationship	
		22.03.2023	2	3.5.1 Classification of Maps 3.5.1 Physical Map 3.5.2 Topographic Map 3.5.3 Road Map 3.5.4 Political Map 3.5.5 Economic & Resources Map 3.5.6 Thematic Map 3.5.7 Climate Map	
		23.03.2023	1	SURVEY OF INDIA MAP SERIES: 4.1 Open Series map	
		7 th	27.03.2023	2	4.2 Defense Series Map
			29.03.2023	2	4.2 Map Nomenclature
			31.03.2023		Monthly Class Test-(March)
		03.04.2023	2	4.3.1 Quadrangle Name 4.3.2 Latitude, Longitude, UTM's 4.3.4 Contour Lines 4.3.5 Magnetic Declination 4.3.6 Public Land Survey System 4.3.7 Field Notes	

8 th	APRIL	05.04.2023	2	BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION: 5.1 Aerial Photography: 5.1.1 Film, Focal Length, Scale
		06.04.2023	1	5.1.2 Types of Aerial Photographs (Oblique, Straight)
9 th		10.04.2023	2	5.2 Photogrammetry: 5.2.1 Classification of Photogrammetry, 5.2.2 Aerial Photogrammetry, 5.2.3 Terrestrial Photogrammetry
		12.04.2023	2	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform 5.3.2 Control Survey
		13.04.2023	1	5.3.3 Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1 X-parallax 19.2.2 Y-parallax
10 th		17.04.2023	2	5.4 DTM/DEM Generation 5.5 Ortho Image Generation
		19.04.2023	2	MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite
		20.04.2023	1	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		24.04.2023	2	BASICS ON GPS & DGPS AND ETS: 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals 7.1.2 Errors of GPS,Positioning Methods
		26.04.2023	2	7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup 7.2.2 Rover GPS Set up
		27.04.2023	1	7.2.3 Download, Post-Process and Export GPS data 7.2.4 Sequence to download GPS data from flashcards 7.2.5 Sequence to Post-Process GPS data
		28.04.2023		Monthly Class Test-(April)
12 th	MAY	01.05.2023	2	7.2.6 Sequence to export post process GPS data 7.2.7 Sequence to export GPS Time tags to file
		03.05.2023	2	7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement 7.3.2 Angle Measurement
		04.05.2023	1	7.3.3 Leveling 7.3.4 Determining position 7.3.5 Reference networks 7.3.6 Errors and Accuracy
		08.05.2023	2	BASICS OF GIS AND MAP PREPARATION USING GIS 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
13 th		10.05.2023	2	8.3 Spatial Data Model 8.4 Attribute Data Management and Metadata Concept 8.5 Prepare data and adding to Arc Map. 8.6 Organizing data as layers.
		11.05.2023	1	8.7 Editing the layers. 8.8 Switching to Layout View. 8.9 Change page orientation.
14 th		15.05.2023	2	8.10 Removing Borders. 8.11 Adding and editing map information. 8.12 Finalize the map
		17.05.2023	2	REVISION
		18.05.2023	1	REVISION
15 th		22.05.2023	2	REVISION
		TOTAL	64	

Judha
13/02/23

Concerned Faculty

Principal
Principal
O.S.M.E., Keonjhar

LESSON PLAN- SUMMER 2023

Discipline-Civil Engineering	Semester-4 th
Semester from date- 14.02.2023 to 23.05.2023	No of Weeks- 15
No of classes allotted(hours/week)-05	Total Period- 75
Subject-Land Surveying – I	Subject Code-Th.03

Name of the Teaching Faculty- Sudhashree Munda

WEEK	MONTH	DATE/ CLASS DAY	PERIOD AVAILABLE	TOPICS TO BE COVERED
1 st	FEBRUARY	14.02.2023	1	Briefing about the syllabus, Introduction to the subject , It's objective and practical application of it, Mark distribution ,reference book etc.
		16.02.2023	1	Chapter-1: INTRODUCTION TO SURVEYING, LINEAR MEASUREMENTS: 1.1 Surveying: Definition, Aims and objectives
		17.02.2023	1	1.2 Principles of survey-Plane surveying- Geodetic Surveying- Instrumental surveying.
2 nd		20.02.2023	2	1.3 Precision and accuracy of measurements, instruments used for measurement of distance, Types of tapes and chains.
		21.02.2023	1	1.4 Errors and mistakes in linear measurement – classification, Sources of errors and remedies.
		23.02.2023	1	1.5 Corrections to measured lengths due to-incorrect length, temperature variation, pull, sag, numerical problem applying corrections. & REVISION
		24.02.2023	1	Chapter-2: CHAINING AND CHAIN SURVEYING : 2.1 Equipment and accessories for chaining
3 rd		27.02.2023	2	2.2 Ranging – Purpose, signaling, direct and indirect ranging, Line ranger – features and use, error due to incorrect ranging.
		28.02.2023	1	2.3 Methods of chaining –Chaining on flat ground, Chaining on sloping ground – stepping method, Clinometer-features and use, slope correction.
	MARCH	01.03.2023		Monthly Class test-(February)
02.03.2023		1	2.4 Setting perpendicular with chain & tape, Chaining across different types of obstacles –Numerical problems on chaining across obstacles.	
03.03.2023		1	2.5 Purpose of chain surveying, Its Principles, concept of field book.	
4 th		06.03.2023	2	2.6 Selection of survey stations, base line, tie lines, Check lines.
		09.03.2023	1	2.7 Offsets – Necessity, Perpendicular and Oblique offsets, Instruments for setting offset – Cross Staff, Optical Square.
		10.03.2023	1	2.8 Errors in chain surveying – compensating and accumulative errors causes & remedies, Precautions to be taken during chain surveying. & REVISION.
		13.03.2023	2	Chapter-3: ANGULAR MEASUREMENT AND COMPASS SURVEYING : 3.1 Measurement of angles with chain, tape & compass 3.2 Compass – Types, features, parts, merits & demerits, testing & adjustment of compass
5 th		14.03.2023	1	3.3 Designation of angles- concept of meridians – Magnetic, True, arbitrary; Concept of bearings – Whole circle bearing, Quadrantal bearing, Reduced bearing, suitability of application, numerical problems on conversion of bearings
		16.03.2023	1	3.4 Use of compasses – setting in field-centering, leveling, taking

				readings, concepts of Fore bearing, Back Bearing, Numerical problems on computation of interior & exterior angles from bearings
		17.03.2023	1	3.5 Effects of earth's magnetism – dip of needle, magnetic declination, variation in declination, numerical problems on application of correction for declination
6 th		20.03.2023	2	3.6 Errors in angle measurement with compass – sources & remedies
		21.03.2023	1	3.7 Principles of traversing – open & closed traverse, Methods of traversing.
		23.03.2023	1	3.8 Local attraction – causes, detection, errors, corrections, Numerical problems of application of correction due to local attraction.
		24.03.2023	1	3.9 Errors in compass surveying – sources & remedies, Plotting of traverse – check of closing error in closed & open traverse, Bowditch's correction, Gales table. & REVISION
7 th		27.03.2023	2	Chapter-4: MAP READING CADASTRAL MAPS & NOMENCLATURE: 4.1 Study of direction, Scale, Grid Reference and Grid Square Study of Signs and Symbols
		28.03.2023	1	4.2 Cadastral Map Preparation Methodology
		29.03.2023		Monthly Class Test-(March)
		31.03.2023	1	4.3 Unique identification number of parcel 4.4 Positions of existing Control Points and its types
8 th		03.04.2023	2	4.5 Adjacent Boundaries and Features, Topology Creation and verification. & REVISION
		04.04.2023	1	Chapter-5: PLANE TABLE SURVEYING : 5.1 Objectives, principles and use of plane table surveying. 5.2 Instruments & accessories used in plane table surveying
		06.04.2023	1	5.3 Methods of plane table surveying – (1) Radiation, (2) Intersection, (3) Traversing, (4) Resection.
9 th		10.04.2023	2	5.4 Statements of TWO POINT and THREE POINT PROBLEM. Errors in plane table surveying and their corrections, precautions in plane table surveying. & REVISION
		11.04.2023	1	Chapter-6: THEODOLITE SURVEYING AND TRAVERSING: 6.1 Purpose and definition of theodolite surveying
		13.04.2023	1	6.2 Transit theodolite- Description of features, component parts, Fundamental axes of a theodolite, concept of vernier, reading a vernier, Temporary adjustment of theodolite
		17.04.2023	2	6.3 Concept of transiting –Measurement of horizontal and vertical angles.
10 th		18.04.2023	1	6.4 Measurement of magnetic bearings, deflection angle, direct angle, setting out angles, prolonging a straight line with theodolite, Errors in Theodolite observations.
		20.04.2023	1	6.5 Methods of theodolite traversing with – inclined angle method, deflection angle method, bearing method, Plotting the traverse by coordinate method, Checks for open and closed traverse.
		21.04.2023	1	6.6 Traverse computation – consecutive coordinates, latitude and departure, Gale's traverse table, Numerical problems on omitted measurement of lengths & bearings
11 th		24.04.2023	2	6.7 Closing error – adjustment of angular errors, adjustment of bearings, numerical problems 6.8 Balancing of traverse –

				Bowditch's method, transit method, graphical method, axis method, calculation of area of closed traverse. & REVISION
		25.04.2023	1	Chapter-7: LEVELLING AND CONTOURING : 7.1 Definition and Purpose and types of leveling- concepts of level surface, Horizontal surface, vertical surface, datum, R. L., B.M.
		26.04.2023	.	Monthly Class Test-(April)
		27.04.2023	1	7.2 Instruments used for leveling, concepts of line of collimation, axis of bubble tube, axis of telescope, Vertical axis.
		28.04.2023	1	7.3 Levelling staff – Temporary adjustments of level, taking reading with level, concept of bench mark, BS, IS, FS, CP, HI.
12 th	MAY	01.05.2023	2	7.4 Field data entry – level Book – height of collimation method and Rise & Fall method, comparison, Numerical problems on reduction of levels applying both methods, Arithmetic checks.
		02.05.2023	1	7.5 Effects of curvature and refraction, numerical problems on application of correction.
		04.05.2023	1	7.6 Reciprocal leveling – principles, methods, numerical problems, precise leveling.
13 th		08.05.2023	2	7.7 Errors in leveling and precautions, Permanent and temporary adjustments of different types of levels.
		09.05.2023	1	7.8 Definitions, concepts and characteristics of contours.
		11.05.2023	1	7.9 Methods of contouring, plotting contour maps, Interpretation of contour maps, toposheets.
		12.05.2023	1	7.10 Use of contour maps on civil engineering projects – drawing crosssections from contour maps, locating proposal routes of roads / railway / canal on a contour map, computation of volume of earthwork from contour map for simple structure.
14 th		15.05.2023	2	7.11 Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making & REVISION
		16.05.2023	1	Chapter-8: COMPUTATION OF AREA & VOLUME: 8.1 Determination of areas, computation of areas from plans.
		18.05.2023	1	8.2 Calculation of area by using ordinate rule, trapezoidal rule, Simpson's rule.
15 th		22.05.2023	2	8.3 Calculation of volumes by prismoidal formula and trapezoidal formula, Prismoidal corrections, curvature correction for volumes. & REVISION
		23.05.2023	1	REVISION
			Total=	65

Fudhe
13/02/23
Concerned Faculty

Principal
Principal
O.S.M.E. Bhopal

LESSON PLAN- SUMMER 2023

Discipline-Civil Engineering

Semester-4th

Semester from date- 14.02.2023 to 23.05.2023

No of Weeks- 15

No of classes allotted(hours/week)-07

Total Period- 105

Subject-Land Survey Practice-I

Subject Code-Pr.01

Name of the Teaching Faculty- Sudhashree Munda

WEEK	MONTH	DATE/ CLASS DAY	PERIOD AVAILABLE	TOPICS TO BE COVERED
1 st	FEBRUARY	20.02.2023	3	Linear Measurements, Chaining and Chain Surveying: 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. 1.3 Setting out different types of triangles, given the lengths of sides with chain and tape.
		25.02.2023	4	1.4 Measurement of distance between two points by chaining across a sloped ground using stepping method and a clinometer. 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.
2 nd		27.02.2023	3	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
	MARCH	04.03.2023	4	Angular Measurement and Compass Surveying: 2.1 Testing and adjustment of Prismatic compass and Surveyor's compass. 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		06.03.2023	3	2.3 Setting out triangles (at least 2) with compass, given the length and bearing of one side and included angles. 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.
		11.03.2023	4	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).
4 th		13.03.2023	3	Map Reading Cadastral Maps & Nomenclature: 3.1 Study of direction, Scale, Grid Reference and Grid Square 3.2 Study of Signs and Symbols 3.3 Cadastral Map Preparation Methodology
		18.03.2023	4	3.4 Unique identification number of parcel

				3.5 Positions of existing Control Points and its types 3.6 Adjacent Boundaries and Features. Topology Creation and verification.
5 th	APRIL	20.03.2023	3	Plane Table Surveying: 4.1 Setting up of Plane Table and Plotting five points by radiation method and five inaccessible points by intersection method
		25.03.2023	4	4.2 Conducting Plane Table surveying in a given plot of area by traversing (At least a 5-sided traverse and locating the objects)
6 th		27.03.2023	3	4.3 Plane table surveying by Resection method (two point & three point problem method)
7 th		03.04.2023	3	Theodolite Traversing: 5.1 Measurement of horizontal angles (3nos.) by repetition and reiteration method and compare two methods 5.2 Prolonging a given straight line with the help of a theodolite
		08.04.2023	4	5.3 Determination of magnetic bearing of 3 given straight lines. Setting out a closed traverse with 6 sides and entering the field data 5.4 Plotting the traverse from exercise 4.1 and checking the error of closure
8 th		10.04.2023	3	5.5 Setting out an open traverse with 5 sides and entering the field data. 5.6 Plotting the traverse from exercise 4.3 and checking the error of closure.
		15.04.2023	4	Leveling and Contouring: 6.1 Making temporary adjustments of Levels 6.2 Determining Reduced Levels of five given points taking staff readings with Levels.
9 th		17.04.2023	3	6.3 Determining the difference of levels between two points (3 pairs of points / group) by taking staff readings from single set up of level, recording the readings in level book and application of Arithmetic check. (At least 3 change points must be covered). 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)
		22.04.2023	4	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.
10 th		24.04.2023	3	6.6 Locating contour points in the given area by direct method / indirect method 6.7 Conducting block level survey in the given area 6.8 Plotting and drawing contour map of a given area by

		29.04.2023	4	radial method 6.9 Map Interpretation: Interpret Human and Economic Activities (i.e.: Settlement, Communication, Land use etc.), Interpret Physical landform (i.e.: Relief, Drainage Pattern etc.), Problem Solving and Decision Making.
11 th	MAY	01.05.2023	3	Basics of Aerial Photography: 7.1 Film 7.2. Focal Length 7.3. Scale
12 th		06.05.2023	4	7.4. Types of Aerial Photographs (Oblique, Straight)
		08.05.2023	3	Basics of Photogrammetry, DEM and Ortho Image generation: Photogrammetry 8.1 Classification of Photogrammetry 8.2 Aerial Photogrammetry 8.3 Terrestrial Photogrammetry
13 th		13.05.2023	4	Photogrammetry Process: 8.4 Acquisition of Imagery using aerial and satellite platform 8.5 Control Survey
		15.05.2023	3	8.6 Geometric Distortion in Imagery 8.7 Application of Imagery and its support data 8.8 Orientation and Triangulation
		20.05.2023	4	8.9 Stereoscopic Measurement: X-parallax and Y-parallax 8.10 DTM/DEM Generation 8.11 Ortho Image Generation
14 th		22.05.2023	3	SUBMISSION OF RECORDS.
		TOTAL=	90	

Ludha
13/02/23
Concerned Faculty

Principal
Principal
O.S.M.E. Kuvempur

LESSON PLAN- SUMMER 2023

Discipline-Civil Engineering

Semester-6th

Semester from date 14.02.2023 to 23.05.2023

No of Weeks 15

No of classes allotted(hours/week)-05

Total Period 75

Subject-Land Survey Practice - II

Subject Code-Pr.02

Name of the Teaching Faculty- Sudhashree Munda

WEEK	MONTH	DATE/ CLASS DAY	PERIOD AVAILABLE	TOPICS TO BE COVERED
1 st	FEBRUARY	15.02.2023	3	Briefing about the syllabus, Introduction to the subject, It's objective and practical application of it, Mark distribution, reference book etc. TRIGONOMETRICAL SURVEYING & TACHEOMETRY: 1.1 Determination of height of 3 objects whose bases are accessible
2 nd		16.02.2023	2	1.2 Determination of stadia constants
		22.02.2023	3	1.3 Determination of horizontal distance and elevation with Staff vertical, by stadia method
		23.02.2023	2	SETTING OUT CURVES AND SITE SURVEYING: 2.1 Setting out a simple circular curve by offsets from long chord
3 rd	MARCH	01.03.2023	3	2.2 Setting out a simple circular curve by offsets from the tangent
4 th		02.03.2023	2	2.3 Setting out a simple circular curve by offsets from chords produces
		09.03.2023	2	2.4 Setting out a simple circular curve by Rankine's method of tangent angle (Deflection angles) Setting out a site the center line and foundation width of a building from the given plan
		15.03.2023	3	2.5 Setting out the foundation line for a culvert
5 th		16.03.2023	2	2.6 Dividing an area into plots of given size
6 th		22.03.2023	3	STUDY OF MAP AND MAP SERIES: 3.1 Physical Map
7 th		23.03.2023	2	3.2 Topographic Map
	29.03.2023	3	3.3 Road Map	
8 th	APRIL	05.04.2023	3	3.4 Political Map
9 th		06.04.2023	2	3.5 Economic & Resources Map
		12.04.2023	3	3.6 Thematic Map
		13.04.2023	2	3.7 Climate Map
10 th		19.04.2023	3	3.8 Open Series map and Defense Series Map
		20.04.2023	2	STUDY ON GPS & DGPS AND ETS: 4.1 GPS: - Global Positioning, GPS Signals, Errors of GPS, Positioning Methods
11 th		26.04.2023	3	4.2 DGPS: - Differential Global Positioning System
		27.04.2023	2	4.2.1 Base Station Setup

12 th	MAY	03.05.2023	3	4.2.2 Rover GPS Set up 4.2.3 Download, Post-Process and Export GPS data 4.2.4 Sequence to download GPS data from flashcards 4.2.5 Sequence to Post-Process GPS data 4.2.6 Sequence to export post process GPS data 4.2.7 Sequence to export GPS Time tags to file
		04.05.2023	2	4.3 ETS: - Electronic Total Station 4.3.1 Distance Measurement 4.3.2 Angle Measurement 4.3.3 Leveling 4.3.4 Determining position 4.3.5 Reference networks 4.3.6 Errors and Accuracy
13 th		10.05.2023	3	STUDY OF GIS AND MAP PREPARATION USING GIS: 5.1 Components of GIS, Integration of Spatial and Attribute Information 5.2 Three Views of Information System 5.2.1 Database or Table View, Map View and Model View 5.3 Spatial Data Model 5.4 Attribute Data Management and Metadata Concept 5.5 Prepare data and adding to Arc Map. 5.6 Organizing data as layers.
		11.05.2023	2	5.7 Editing the layers. 5.8 Switching to Layout View. 5.9 Change page orientation. 5.10 Removing Borders. 5.11 Adding and editing map information. 5.12 Finalize the map
14 th		17.05.2023	3	Q/A Discussion for Viva.
		18.05.2023	2	SUBMISSION OF RECORDS.
		TOTAL	65	

[Signature]
13/05/23
Concerned Faculty

[Signature]
Principal
O.S.M.E., Keonjhar
21/05/23