



**NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY**  
**SERGARH-756060, BALASORE (ODISHA)**  
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



## **LESSON PLAN**

**SUBJECT: Th-1 (LAND SURVEY– II)**

### **CHAPTER WISE DISTRIBUTION OF PERIODS**

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	TACHEOMETRY	9	9
2	CURVES	8	8
3	BASICS ON SCALE AND BASICS OF MAPS	8	8
4	SURVEY OF INDIA MAP SERIES	10	10
5	BASICS OF AREAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM, ORTHO IMAGE GENERATION	10	10
6	MODERN SURVEYING METHODS	10	10
7	BASICS ON GPS AND DGPS AND ETS	10	10
8	BASICS OF GIS AND MAP PREPARATION USING GIS	10	10

<b>Discipline:</b> Civil ENGINEERING	<b>Semester:</b> 6th	<b>Name of the Teaching Faculty:</b> Er. Biswajit Behera
<b>Week</b>	<b>Class Day</b>	<b>Theory / Practical Topics</b>
<b>1<sup>st</sup></b>	<b>1<sup>st</sup></b>	TACHEOMETRY: 1.1 Principles, stadia constants determination
	<b>2<sup>nd</sup></b>	1.2 Stadia tacheometry with staff held vertical & numerical problems
	<b>3<sup>rd</sup></b>	1.2 Stadia tacheometry with staff held vertical & numerical problems
	<b>4<sup>th</sup></b>	1.2 Stadia tacheometry with staff held vertical horizontal or inclined, numerical problems
	<b>5th</b>	1.2 Stadia tacheometry with staff held vertical horizontal & numerical problems
<b>2<sup>nd</sup></b>	<b>1<sup>st</sup></b>	1.2 Stadia tacheometry with staff held vertical inclined, numerical problems
	<b>2<sup>nd</sup></b>	1.3 Elevations and distances of staff stations – numerical problems
	<b>3<sup>rd</sup></b>	1.3 Elevations and distances of staff stations – numerical problems
	<b>4<sup>th</sup></b>	2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field
	<b>5th</b>	2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field
<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>	2.2 Elements of circular curves, numerical problems
	<b>2<sup>nd</sup></b>	2.2 Elements of circular curves, numerical problems
	<b>3<sup>rd</sup></b>	2.3 Preparation of curve table for setting out

	<b>4<sup>th</sup></b>	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
	<b>5<sup>th</sup></b>	2.4 Setting out of circular curve by chain and tape & by offsets from tangents, offsets from chord produced method
<b>4<sup>th</sup></b>	<b>1<sup>st</sup></b>	2.4 Setting out of circular curve by chain and tape and by Rankine's method of tangent angles
	<b>2<sup>nd</sup></b>	2.5 Obstacles in curve ranging – point of intersection inaccessible BASICS ON SCALE AND BASICS OF MAP:
	<b>3<sup>rd</sup></b>	3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale
	<b>4<sup>th</sup></b>	3.2 What is Map, Map Scale and Map Projections
	<b>5<sup>th</sup></b>	3.3 How Maps Convey Location and Extent
<b>5<sup>th</sup></b>	<b>1<sup>st</sup></b>	3.4 How Maps Convey characteristics of features
	<b>2<sup>nd</sup></b>	3.5 How Maps Convey Spatial Relationship
	<b>3<sup>rd</sup></b>	3.5.1 Classification of Maps 3.5.1 Physical Map
	<b>4<sup>th</sup></b>	3.5.2 Topographic Map 3.5.3 Road Map 3.5.4 Political Map
	<b>5<sup>th</sup></b>	3.5.5 Economic & Resources Map 3.5.6 Thematic Map 3.5.7 Climate Map
<b>6<sup>th</sup></b>	<b>1<sup>st</sup></b>	SURVEY OF INDIA MAP SERIES: 4.1 Open Series map
	<b>2<sup>nd</sup></b>	4.2 Defense Series Map
	<b>3<sup>rd</sup></b>	4.3 Map Nomenclature
	<b>4<sup>th</sup></b>	4.3.1 Quadrangle Name    4.3.2 Latitude, Longitude, UTM's

	<b>5th</b>	4.3.4 Contour Lines
<b>7<sup>th</sup></b>	<b>1<sup>st</sup></b>	4.3.2 Latitude, Longitude, UTM's 4.3.4 Contour Lines
	<b>2<sup>nd</sup></b>	4.3.5 Magnetic Declination 4.3.6 Public Land Survey System
	<b>3<sup>rd</sup></b>	4.3.5 Magnetic Declination 4.3.6 Public Land Survey System
	<b>4th</b>	4.3.7 Field Notes
	<b>5th</b>	Revision
<b>8<sup>th</sup></b>	<b>1<sup>st</sup></b>	BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION: 5.1 Aerial Photography: 5.1.1 Film, Focal Length, Scale
	<b>2<sup>nd</sup></b>	5.1.2 Types of Aerial Photographs (Oblique, Straight) 5.2 Photogrammetry:
	<b>3<sup>rd</sup></b>	5.2.1 Classification of Photogrammetry 5.1.2 Types of Aerial Photographs (Oblique, Straight) 5.2 Photogrammetry:
	<b>4th</b>	5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry
	<b>5th</b>	5.2.3 Terrestrial Photogrammetry 5.2.2 Aerial Photogrammetry 5.2.3 Terrestrial Photogrammetry
<b>9<sup>th</sup></b>	<b>1<sup>st</sup></b>	5.3 Photogrammetry Process: 5.3.1 Acquisition of Imagery using aerial and satellite platform
	<b>2<sup>nd</sup></b>	5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery
	<b>3<sup>rd</sup></b>	Application of Imagery and its support data Orientation and Triangulation

	<b>4th</b>	Orientation and Triangulation Stereoscopic Measurement X-parallax Y-parallax
	<b>5th</b>	Stereoscopic Measurement X-parallax Y-parallax
<b>10<sup>th</sup></b>	<b>1<sup>st</sup></b>	5.4 DTM/DEM Generation 5.5 Ortho Image Generation
	<b>2<sup>nd</sup></b>	5.4 DTM/DEM Generation 5.5 Ortho Image Generation
	<b>3<sup>rd</sup></b>	MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	<b>4th</b>	MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite
	<b>5th</b>	MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite
<b>11<sup>th</sup></b>	<b>1<sup>st</sup></b>	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 of surveyed points relative to Total Station position using trigonometry and triangulation)
	<b>2<sup>nd</sup></b>	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 of surveyed points relative to Total Station position using trigonometry and triangulation)
	<b>3<sup>rd</sup></b>	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 of surveyed points relative to Total Station position using trigonometry and triangulation)
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	<b>5th</b>	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 of surveyed points relative to Total Station position using trigonometry and triangulation)
	<b>1<sup>st</sup></b>	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 of surveyed points relative to Total Station position using trigonometry and triangulation)

<b>12<sup>th</sup></b>	<b>2<sup>nd</sup></b>	BASICS ON GPS & DGPS AND ETS: 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals
	<b>3<sup>rd</sup></b>	BASICS ON GPS & DGPS AND ETS: 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS,GPS Signals
	<b>4<sup>th</sup></b>	7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup
	<b>5<sup>th</sup></b>	7.2 DGPS: - Differential Global Positioning System 7.2.2 Rover GPS Set up 7.2.3 Download, Post-Process and Export GPS data
<b>13<sup>th</sup></b>	<b>1<sup>st</sup></b>	7.2 DGPS: - Differential Global Positioning System 7.2.4 Sequence to download GPS data from flashcards 7.2.5 Sequence to Post-Process GPS data
	<b>2<sup>nd</sup></b>	7.2 DGPS: - Differential Global Positioning System 7.2.4 Sequence to download GPS data from flashcards 7.2.5 Sequence to Post-Process GPS data
	<b>3<sup>rd</sup></b>	7.2 DGPS: - Differential Global Positioning System 7.2.6 Sequence to export post process GPS data 7.2.7 Sequence to export GPS Time tags to file
	<b>4<sup>th</sup></b>	7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement 7.3.2 Angle Measurement
	<b>5<sup>th</sup></b>	7.3.3 Leveling 7.3.4 Determining position
<b>14<sup>th</sup></b>	<b>1<sup>st</sup></b>	7.3.5 Reference networks 7.3.6 Errors and Accuracy
	<b>2<sup>nd</sup></b>	BASICS OF GIS AND MAP PREPARATION USING GIS 8.1 Components of GIS, Integration of Spatial and Attribute Information
	<b>3<sup>rd</sup></b>	8.2 Three Views of Information System 8.2.1 Database or Table View, Map View and Model View
	<b>4<sup>th</sup></b>	8.3 Spatial Data Model 8.4 Attribute Data Management and Metadata Concept
	<b>5<sup>th</sup></b>	8.5 Prepare data and adding to Arc Map. 8.6 Organizing data as layers
	<b>1<sup>st</sup></b>	8.7 Editing the layers. 8.8 Switching to Layout View.
	<b>2<sup>nd</sup></b>	8.9 Change page orientation. 8.10 Removing Borders

<b>15<sup>th</sup></b>	<b>3<sup>rd</sup></b>	8.11 Adding and editing map information. 8.12 Finalize the map
	<b>4<sup>th</sup></b>	Revision
	<b>5<sup>th</sup></b>	Revision