



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)

Name Of The Faculty :- Er. ROMALINI ROUT

Branch :- Civil Engineering

Session :- 2024-25

Semester :- 6th

Examination :- 2025 (S)

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 | 9 |
| 7 | BASICS ON GPS AND DGPS AND ETS | 10 | 9 |
| 8 | BASICS OF GIS AND MAP PREPARATION USING GIS | 10 | 9 |
| | TOTAL PERIOD | 75 | 72 |

R. Rout
01/02/25
Sign of Faculty

VSP
01/02/25
Sign of H.O.D.

| Discipline: CIVIL ENGINEERING | Semester: 4th | Name of the Teaching Faculty: Er.ROMALINI ROUT | |
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| | | SESSION : 2024-25 | EXAMINATION : 2025 (S) |
| | Class Day | Topics to be Covered | |
| Week | 1 st | TACHEOMETRY: 1.1 Principles, stadia constants determination | |
| 1 st | 2 nd | 1.2 Stadia tacheometry with staff held vertical & numerical problems | |
| | 3 rd | 1.2 Stadia tacheometry with staff held vertical & numerical problems | |
| | 4 th | 1.2 Stadia tacheometry with staff held vertical horizontal or inclined | |
| | 5 th | 1.2 Stadia tacheometry with staff held vertical horizontal & numerals | |
| 2 nd | 1 st | 1.2 Stadia tacheometry with staff held vertical inclined, numerals | |
| | 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 | CURVE 2.1 compound, reverse and transition curve, Purpose & use of different types of curves in field | |
| 3 rd | 1 st | 2.2 Elements of circular curves, numerical problems | |
| | 2 nd | 2.2 Elements of circular curves, numerical problems | |
| | 3 rd | 2.3 Preparation of curve table for setting out | |
| | 4 th | 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 | |
| | 5 th | 2.4 Setting out of circular curve by chain and tape & by offsets from tangents, offsets from chord produced method | |
| 4 th | 1 st | 2.4 Setting out of circular curve by chain and tape and by Rankine's method of tangent angles | |
| | 2 nd | 2.5 Obstacles in curve ranging – point of intersection inaccessible | |
| | 3 rd | BASICS ON SCALE AND MAP 3.1 Fractional or Ratio Scale, Linear Scale, Graphical Scale | |

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| 4 th | 4 th | 3.2 What is Map, Map Scale and Map Projections |
| | 5 th | 3.3 How Maps Convey Location and Extent |
| 5 th | 1 st | 3.4 How Maps Convey characteristics of features |
| | 2 nd | 3.5 How Maps Convey Spatial Relationship |
| | 3 rd | 3.5.1 Classification of Maps 3.5.1 Physical Map |
| | 4 th | 3.5.2 Topographic Ma 3.5.3 Road Map 3.5.4 Political Map |
| | 5 th | 3.5.5 Economic & Resources Map 3.5.6 Thematic Map 3.5.7 Climate Map |
| 6 th | 1 st | SURVEY OF INDIA MAP SERIES: 4.1 Open Series map |
| | 2 nd | 4.2 Defense Series Map |
| | 3 rd | 4.3 Map Nomenclature |
| | 4 th | 4.3.1 Quadrangle Name 4.3.2 Latitude, Longitude, UTM's |
| | 5 th | 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 4.3.6 Public Land Survey System |
| | 3 rd | 4.3.5 Magnetic Declination 4.3.6 Public Land Survey System |
| | 4 th | 4.3.7 Field Notes |
| | 5 th | Revision |
| 8 th | 1 st | BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION: 5.1 Aerial Photography: 5.1.1 Film, Focal Length, Scale |
| | 2 nd | 5.1.2 Types of Aerial Photographs (Oblique, Straight) 5.2 Photogrammetry: |
| | 3 rd | 5.2.1 Classification of Photogrammetry 5.1.2 Types of Aerial Photographs (Oblique, Straight) 5.2 Photogrammetry: |
| | 4 th | 5.2.1 Classification of Photogrammetry 5.2.2 Aerial Photogrammetry |
| | 5 th | 5.2.3 Terrestrial Photogrammetry 5.2.2 Aerial Photogrammetry 5.2.3 Terrestrial Photogrammetry |

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| 9 th | 1 st | 5.3 Photogrammetry Process 5.3.1 Acquisition of Imagery using aerial and satellite platform |
| | 2 nd | 5.3.2 Control Survey 5.3.3 Geometric Distortion in Imagery |
| | 3 rd | Application of Imagery and its support data Orientation and Triangulation |
| | 4 th | Orientation and Triangulation Stereoscopic Measurement X-parallax Y-parallax |
| | 5 th | Stereoscopic Measurement X-parallax Y-parallax |
| 10 th | 1 st | 5.4 DTM/DEM Generation 5.5 Ortho Image Generation |
| | 2 nd | 5.4 DTM/DEM Generation 5.5 Ortho Image Generation |
| | 3 rd | MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite |
| | 4 th | MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite |
| | 5 th | MODERN SURVEYING METHODS : 6.1 Principles, features and use of (i) Micro-optic theodolite, digital theodolite |
| 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 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 of surveyed points relative to Total Station position using trigonometry and triangulation |
| | 3 rd | INTERNAL ASSESMENT. |
| | 4 th | INTERNAL ASSESMENT. |
| | 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 of surveyed points relative to Total Station position using trigonometry and triangulation |
| 12 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 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 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 of surveyed |

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| 12 th | 4 th | BASICS ON GPS & DGPS AND ETS: 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS, GPS Signals |
| | 5 th | BASICS ON GPS & DGPS AND ETS: 7.1 GPS: - Global Positioning 7.1.1 Working Principle of GPS, GPS Signals |
| 13 th | 1 st | 7.2 DGPS: - Differential Global Positioning System 7.2.1 Base Station Setup |
| | 2 nd | 7.2 DGPS: - Differential Global Positioning System 7.2.2 Rover GPS Set up 7.2.3 Download, Post-Process and Export GPS data |
| | 3 rd | 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 |
| | 4 th | 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 |
| | 5 th | 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 |
| 14 th | 1 st | 7.3 ETS: - Electronic Total Station 7.3.1 Distance Measurement |
| | 2 nd | 7.3.3 Leveling 7.3.4 Determining position |
| | 3 rd | 7.3.5 Reference networks 7.3.6 Errors and Accuracy |
| | 4 th | BASICS OF GIS AND MAP PREPARATION USING GIS 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 |
| 15 th | 1 st | 8.3 Spatial Data Model 8.4 Attribute Data Management and Metadata Concept |
| | 2 nd | 8.5 Prepare data and adding to Arc Map. 8.6 Organizing data as layers |
| | 3 rd | 8.7 Editing the layers. 8.8 Switching to Layout View 8.9 Change page orientation. |
| | 4 th | 8.10 Removing Borders 8.11 Adding and editing map information. 8.12 Finalize the map |
| | 5 th | REVISION |

A. Roy
6/12/25
Sign of Faculty

K. S. S. S.
6/12/25
Sign of H.O.D.