**LESSON PLAN**

|  |  |  |
| --- | --- | --- |
| **Discipline:**  Civil Engineering | **Semester:**  sixth(6th ) | **Name Of The Faculty:**  Er. Malaya Ranjan Sahu |
| **Subject:**  Land Survey-II  (Th-1) | **No of days/ week class allotted:** Six(6) | **Semester from date: 16.01.24** **to Date: 26.04.24**  **No of weeks: 15** |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
| 1st | 1st | **Chapter No-01 (Tacheometry)**  **Only concepts; applications without derivation)**  Principles |
| 2nd | stadia constants determination |
| 3rd | Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined  Numerical problems |
| 4th | Elevations and distances of staff stations – numerical problems |
| 5th | ***Possible Question Answer Discussion*** |
| 6th | **Chapter No-02 (Curves)**  Compound, reverse and transition curve, Purpose & use of different types of curves in field. |
| 2nd | 1st | Elements of circular curves, numerical problems Preparation of curve table for Setting out. |
| 2nd | 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, |
| 3rd | iv) offsets from chord produced, (v) Rankine’s method of tangent angles (No derivation) |
| 4th | Obstacles in curve ranging – point of intersection inaccessible |
| 5th | ***Possible Question Answer Discussion*** |
| 6th | **Chapter No-03 (Basics On Scale And Basics Of Map)**  Fractional or Ratio Scale, Linear Scale, Graphical Scale |
| 3rd | 1st | What is Map, Map Scale and Map Projections |
| 2nd | How Maps Convey Location and Extent |
| 3rd | How Maps Convey characteristics of features |
| 4th | How Maps Convey Spatial Relationship |
| 5th | Classification of Maps- Physical Map |
| 6th | Topographic Map ,Political Map ,Road Map |
| 4th | 1st | ***Monthly Test- 1*** |
| 2nd | Climate Map, Thematic Map, Economic & Resources Map. |
| 3rd | ***Possible Question Answer Discussion*** |
| 4th | **Chapter N0-04 (Survey Of India Map Series)**  Defense Series Map, Open Series map |
| 5th | Map Nomenclature ,Quadrangle Name |
| 6th | Contour Lines, Latitude, Longitude, UTM’s |
| 5th | 1st | Magnetic Declination |
| 2nd | Field Notes ,Public Land Survey System |
| 3rd | ***Possible Question Answer Discussion*** |
| 4th | **Chapter N0-05 (Basics Of Aerial Photography, Photogrammetry, Dem And Ortho Image Generation)**  Film, Focal Length, Scale ,Aerial Photography |
| 5th | Types of Aerial Photographs (Oblique) |
| 6th | Types of Aerial Photographs (Straight) |
| 6th | 1st | Classification of Photogrammetry ,Photogrammetry Aerial Photogrammetry , Terrestrial Photogrammetry, Photogrammetry Process. |
| 2nd | Acquisition of Imagery using aerial and satellite platform  Control Survey. |
| 3rd | 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. |
| 4th | Ortho Image Generation |
| 5th | ***Possible Question Answer Discussion*** |
| 6th | **Chapter No-06 (Modern Surveying Methods )**  Principles, features of (i) Micro-optic theodolite  and use of (i) Micro-optic theodolite |
| 7th | 1st | ***Monthly Test- 2*** |
| 2nd | digital theodolite |
| 3rd | 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. |
| 4th | ***Possible Question Answer Discussion*** |
| 5th | **chapterNo.-07 (BASICS ON GPS & DGPS AND ETS)**  Working principle of GPS,GPS |
| 6th | Signals Errors of GPS,Positioning Methods |
| 8th | 1st | DGPS: - Differential Global Positioning System |
| 2nd | Base Station Setup Rover GPS Set up |
| 3rd | Download, Post-Process and Export GPS data |
| 4th | Sequence to download GPS data from flashcards |
| 5th | Sequence to Post-Process GPS data .Sequence to export post process GPS data Sequence to export GPS Time tags to file |
| 6th | ETS: - Electronic Total Station ,Distance Measurement ,Angle Measurement |
| 9th | 1st | ***Monthly Test- 3*** |
| 2nd | Leveling, Determining position |
| 3rd | Reference networks, Errors and Accuracy |
| 4th | ***Possible Question Answer Discussion*** |
| 5th | **Chapter N0-08 (Basics Of GIS And Map Preparation Using GIS)** Components of GIS, Integration of Spatial and Attribute Information |
| 6th | Three Views of Information System .Database or Table View |
| 10th | 1st | Map View and Model View ,Spatial Data Model. Attribute Data Management and Metadata Concept |
| 2nd | Prepare data and adding to Arc Map |
| 3rd | Organizing data as layers Editing the layers. ,Switching to Layout View. |
| 4th | Change page orientation, Removing Borders |
| 5th | Adding and editing map information, Finalize the map |
| 6th | ***Possible Question Answer Discussion*** |
| 11th | 1st | ***Monthly Test- 4*** |
| 2nd | Review Class for Chapter No.- 01 |
| 3rd | Review Class for Chapter No.- 02 |
| 4th | Review Class for Chapter No.- 03 |
| 5th | Review Class for Chapter No.- 04 |
| 6th | Review Class for Chapter No.- 05 |
| 12th | 1st | Review Class for Chapter No.- 06 |
| 2nd | Review Class for Chapter No.- 06 |
| 3rd | Review Class for Chapter No.- 06 |
| 4th | Review Class for Chapter No.- 07 |
| 5th | Review Class for Chapter No.- 07 |
| 6th | Review Class for Chapter No.- 07 |
| 13th | 1st | Review Class for Chapter No.- 07 |
| 2nd | Review Class for Chapter No.- 08 |
| 3rd | Review Class for Chapter No.- 08 |
| 4th | Review Class for Chapter No.- 05 |
| 5th | Review Class for Chapter No.- 08 |
| 6th | Review Class for Chapter No.- 08 |
| 14th | 1st | Review Class for Chapter No.- 05 |
| 2nd | Review Class for Chapter No.- 06 |
| 3rd | Review Class for Chapter No.- 06 |
| 4th | Review Class for Chapter No.- 07 |
| 5th | Review Class for Chapter No.- 07 |
| 6th | Review Class for Chapter No.- 08 |
| 15th | 1st | Previous Year (S- 22) Question Answer Discussion |
| 2nd | Previous Year (S- 21) Question Answer Discussion |
| 3rd | Previous Year (S- 22) Question Answer Discussion |
| 4th | Previous Year (S- 21) Question Answer Discussion |
| 5th | Previous Year (S- 22) Question Answer Discussion |
| 6th | Previous Year (S- 21) Question Answer Discussion |

**Chapters Covered Upto 1, 2, 3, 4& 5**