

## LESSON PLAN OF 6<sup>th</sup> SEMESTER CIVIL ENGINEERING

| Discipline :- CIVIL      | Semester:- 6 <sup>th</sup>               | Name of the Teaching Faculty:- Mr.Prakash Chandra Murmu   |
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| Subject:- LAND SURVEY-II | No of Days/per Week Class Allotted :- 05 | Semester From:- <u>04.02.2025</u> To:- <u>17.05.2025</u><br>No of Weeks:- 15  |
| Week                     | Class Day                                | Theory Topics   |
| 1 <sup>st</sup>          | 1 <sup>st</sup>                          | <b>Introduction to Tacheometry</b>  |
|                          | 2 <sup>nd</sup>                          | Principles, stadia constants determination .  |
|                          | 3 <sup>rd</sup>                          | Stadia tacheometry with staff held vertical and with line of collimation horizontal   |
|                          | 4 <sup>th</sup>                          | Stadia tacheometry with staff held vertical and with line of collimation inclined   |
|                          | 5 <sup>th</sup>                          | Numerical problems  |
| 2 <sup>nd</sup>          | 1 <sup>st</sup>                          | Elevations and distances of staff stations  |
|                          | 2 <sup>nd</sup>                          | Numerical problems  |
|                          | 3 <sup>rd</sup>                          | <b>Introduction to Curve</b><br>compound, reverse and transition curve  |
|                          | 4 <sup>th</sup>                          | Purpose & use of different types of curves in field   |
|                          | 5 <sup>th</sup>                          | Elements of circular curves   |
| 3 <sup>rd</sup>          | 1 <sup>st</sup>                          | Numerical problems on circular curve  |
|                          | 2 <sup>nd</sup>                          | Preparation of curve table for setting out  |
|                          | 3 <sup>rd</sup>                          | Setting out of circular curve by chain and tape and by instrument angular methods (i) offsets from long chord, (ii) successive bisection of arc,  |
|                          | 4 <sup>th</sup>                          | Setting out of circular curve by chain and tape and by instrument angular methods (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles |
|                          | 5 <sup>th</sup>                          | Obstacles in curve ranging – point of intersection inaccessible   |
| 4 <sup>th</sup>          | 1 <sup>st</sup>                          | Beam & column, lapping, anchorage   |
|                          | 2 <sup>nd</sup>                          | Effective span for beam & slab.   |
|                          | 3 <sup>rd</sup>                          | <b>Introduction to Map</b><br>Fractional or Ratio Scale, Linear Scale, Graphical Scale  |
|                          | 4 <sup>th</sup>                          | About Map, Map Scale and Map Projections  |
|                          | 5 <sup>th</sup>                          | About Maps Convey Location and Extent   |
| 5 <sup>th</sup>          | 1 <sup>st</sup>                          | About Maps Convey characteristics of features   |
|                          | 2 <sup>nd</sup>                          | About Maps Convey Spatial Relationship  |
|                          | 3 <sup>rd</sup>                          | Classification of Maps<br>1 Physical Map<br>2 Topographic Map   |
|                          | 4 <sup>th</sup>                          | 3 Road Map<br>4 Political Map<br>5 Economic & Resources Map   |
|                          | 5 <sup>th</sup>                          | Digital learning of different Maps by using smart class   |
| 6 <sup>th</sup>          | 1 <sup>st</sup>                          | <b>Introduction to Survey of India Map series.</b>  |
|                          | 2 <sup>nd</sup>                          | Open Series map   |

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|                  | 3 <sup>rd</sup> | Defense Series Map  |
|                  | 4 <sup>th</sup> | Map Nomenclature<br>Quadrangle Name   |
|                  | 5 <sup>th</sup> | Moment of resistance of the rectangular section.  |
| 7 <sup>th</sup>  | 1 <sup>st</sup> | Latitude, Longitude, UTM's  |
|                  | 2 <sup>nd</sup> | Contour Lines   |
|                  | 3 <sup>rd</sup> | Magnetic Declination  |
|                  | 4 <sup>th</sup> | Public Land Survey System   |
|                  | 5 <sup>th</sup> | Field Notes   |
| 8 <sup>th</sup>  | 1 <sup>st</sup> | <b>Introduction to Aerial Photography</b> ,<br>Film, Focal Length, Scale  |
|                  | 2 <sup>nd</sup> | Types of Aerial Photographs (Oblique, Straight)   |
|                  | 3 <sup>rd</sup> | <b>Introduction to Photogrammetry:</b><br>Classification of Photogrammetry  |
|                  | 4 <sup>th</sup> | Aerial Photogrammetry   |
|                  | 5 <sup>th</sup> | Terrestrial Photogrammetry ;  |
| 9 <sup>th</sup>  | 1 <sup>st</sup> | Photogrammetry Process:<br>Acquisition of Imagery using aerial and satellite platform   |
|                  | 2 <sup>nd</sup> | Control Survey.   |
|                  | 3 <sup>rd</sup> | Geometric Distortion in Imagery<br>Application of Imagery and its support data<br>Orientation and Triangulation                         |
|                  | 4 <sup>th</sup> | Stereoscopic Measurement<br>X-parallax<br>Y-parallax  |
|                  | 5 <sup>th</sup> | DTM/DEM Generation<br>Ortho Image Generation  |
| 10 <sup>th</sup> | 1 <sup>st</sup> | <b>Introduction to Modern surveying Method</b>  |
|                  | 2 <sup>nd</sup> | Principles, features and use of Micro-optic theodolite  |
|                  | 3 <sup>rd</sup> | Principles, features and use of Digital Theodolite  |
|                  | 4 <sup>th</sup> | Working principles of a Total Station   |
|                  | 5 <sup>th</sup> | Set up and use of total station   |
| 11 <sup>th</sup> | 1 <sup>st</sup> | Angle measurement by using total station.   |
|                  | 2 <sup>nd</sup> | Distance measurement by using total station.  |
|                  | 3 <sup>rd</sup> | the co-ordinates (X,Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry |
|                  | 4 <sup>th</sup> | Triangulation by using Total station  |
|                  | 5 <sup>th</sup> | Field Demonstration of Total station  |
| 12 <sup>th</sup> | 1 <sup>st</sup> | <b>Introduction to GPS</b><br>Working Principle of GPS, GPS Signals   |
|                  | 2 <sup>nd</sup> | Errors of GPS, Positioning Methods  |
|                  | 3 <sup>rd</sup> | <b>Introduction to DGPS</b><br>Base Station Setup<br>Rover GPS Set up   |
|                  | 4 <sup>th</sup> | Download, Post-Process and Export GPS data  |
|                  | 5 <sup>th</sup> | Sequence to download GPS data from flashcards<br>Sequence to Post-Process GPS data  |
| 13 <sup>th</sup> | 1 <sup>st</sup> | Sequence to export post process GPS data<br>Sequence to export GPS Time tags to file  |
|                  | 2 <sup>nd</sup> | <b>Introduction to ETS</b>  |

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|                  | 3 <sup>rd</sup> | Distance Measurement and<br>Angle Measurement by ETS  |
|                  | 4 <sup>th</sup> | Leveling and<br>Determining position by ETS   |
|                  | 5 <sup>th</sup> | Reference networks<br>Errors and Accuracy   |
| 14 <sup>th</sup> | 1 <sup>st</sup> | <b>Introduction to GIS</b><br>Components of GIS, Integration of Spatial and Attribute Information |
|                  | 2 <sup>nd</sup> | Three Views of Information System<br>Database or Table View, Map View and Model View              |
|                  | 3 <sup>rd</sup> | Spatial Data Model<br>Attribute Data Management and Metadata Concept                              |
|                  | 4 <sup>th</sup> | Prepare data and adding to Arc Map.   |
|                  | 5 <sup>th</sup> | Organizing data as layers.<br>Editing the layers.   |
| 15 <sup>th</sup> | 1 <sup>st</sup> | Switching to Layout View<br>Change page orientation.  |
|                  | 2 <sup>nd</sup> | Removing Borders.   |
|                  | 3 <sup>rd</sup> | Removing Borders.   |
|                  | 4 <sup>th</sup> | Adding and editing map information.   |
|                  | 5 <sup>th</sup> | Finalize the map  |

*JAM*  
29.01.25