SYLLABUS under CLL

LAND SURVEY

DURATION:-06 MONTHS

ELIGIBILITY:-CLASS-XI

THEORY:

1.Introduction:

1.1 Definition and objective of surveying. Introduction of various units used for measuring length, area, volume in C.G.S, F.P.S AND M.K.S methods and their internal Conversion.

2.Chain Surveying:

2.1 principles of chain Surveying.

2.2 Instruments used in chain surveying with their brief description and sketch.

2.3 Definition of

(a)Base line

(b)Tie line

(c)Off sets

(d)Reconnaissance

(e)Well Conditioned Triangles

2.4 Upkeep of a field book.

2.5 Overcoming obstacle, ranging a line.

2.6 Errors in chain Survey (no deduction): Simple numerical problems.

2.7 Methods used (only brief idea for practical work).

3. Compass Surveying:

3.1 Introduction:

3.2 Brief description of prismatic compass, Surveyor's compass, bearing of lines, magnetic and true bearing, dip, local attraction.

3.3 Measurement of internal angle of two lines stations.

3.4 Methods of plotting compass survey traverse, Adjustments of closing error. Recording of Field Book.

3.5 Simple Numerical problems on errors in chain Surveying.

4. Levelling:

4.1 Brief description of various leveling instruments with its components.

4.2 Methods used in leveling. Simple numerical problems.

4.3 Reciprocal leveling. Simple numerical problems.

4.4 Levelling difficulties.

4.5 Use of Levelling Instrument for site leveling, Road Cross Section and upkeep of a field book:

5. Plane Table Survey:

5.1 Introduction, Brief description of Instruments used in Plane Table Survey,

5.2 Methods used in Plane Table Survey (Only description for practical class).

5.3 Brief description of Centering, Levelling, Orientation operation used in Plane Table Survey.

6. Theodolite Survey:

6.1 Description of Instrument, Principles of measuring horizontal angles and vertical angles.

6.2 Temporary Adjustments of Theodolite

6.3 Traverse Survey with the Theodolite work

6.4 Sources of error in Theodolite work.

6.5 Checks in Traversing

7. Reading of Building Drawing:

7.1 Plan, Elevation and Section of a Small building.

7.2 Simple idea of R.C.C. Structural detail like Beam, Slab, Column, Footing,

7.3 Introduction to brief idea for material calculation.

7.4 Layout of a plan with area calculation by Simpson's 1/3 Rule & Trapizoidal method

PRACTICAL:

1.Chain Survey:

1.1 Practice in unfolding and folding chain alignment of lines-measurement of distance between given points and their booking.

1.2 Practice in chaining and taking offset, use of optical Square and Cross staff setting out right angles looking of measurements testing of chain, tape, optical square and Cross Staff.

1.3 Procedure in conducting Chain Survey reconnaissance preparation of rough sketch. Selection of base lines and Station points fixing of stations etc.

1.4 Chain Survey of small plots bytriangulation, looking and plotting the same.

1.5 Chain Survey of built-up plots, locating details, booking and plotting the same.

1.6 Taking horizontal measurements on sloping ground overcoming obstacles between two points one of which is invisible or inaccessible from the other.

1.7 Chain Survey of an extensive area, locating detail plotting and finishing the same in ink or colour.

2. Compass Survey:

2.1 Practice in setting up a compass and checking its accuracy-taking bearings and calculating angles (conversion form W.C.B. to R.B.).

2.2 Determining the bearings of a given lines and establishing lines of given bearings- laying out a rectilinear and polygonal plots of ground using a compass and a tape.

2.3 Conducting closed traverse of built up field, and plotting the same finishing in ink or colour.

3. Plane Table Survey"

3.1 Setting up of plane table leveling centering, and orientation.

3.2 Surveying an area with plane table of built up areas.

3.3 Traversing with Plane table of built up areas.

3.4 Running and open traverse with plane table and fixing details, Inking, finishing, colouring etc.

4. Levelling:

4.1 Practice insetting out al level and performing temporary adjustments practice in reading staff.

4.2 Demonstration of permanent adjustment of level.

4.3 Practice in differential leveling including reciprocal leveling and establishing bench marks, reading of inverted staff practice in booking readings.

4.4 Carry out route Survey longitudinal & cross section of a road project its plotting and calculation of earth work.

4.5 Road project reconnaissance, preliminary and final location Survey including preparation of route map to scale, taking profile and section with level plotting; marking formation levels. Calculation of earth work and other material for laying road includes estimation of earth work.

5. Theodolite Survey:

5.1 Practice in setting up a theodolite and taking readings.

5.2 Measurement of horizontal angles by repetition, reiteration methods. Entry of Field book.

5.3 Practice in measuring vertical angles, setting out given vertical angles and entering in the field book.

5.4 Running a closed traverse over a given area, booking calculating the co-ordinates and plotting the traverse.

5.5 Setting out compound Curves, transition Curves with theodolite.

6. Lay-out of Building from the Plan mentioning size of the rooms, etc.

7. Engineering Drawing:

7.1 Drawing different types of lines, lettering etc.

7.2 Construction of Plan, Comparative diagonal and venire Scale

7.3 Drawing of Conventional signs used in engineering Survey,

Cadastral Survey, Building drawing practice.

Note: As this subject is Practical oriented, it is therefore, important to run through the theory and practice simultaneously. Some chapters of Practical are also to be carried out simultaneously for completing the syllabus. Emphasis to be given on work topic rather than simple terms of explanation which can be done during practical work.

AutoCAD – Civil (2D)

Getting started, Object Property & Layer Management, Drawing Geometry , Tools for Creating Key Geometry , Tools for Manipulating Geometry, Creating Drawing Sheets , Dimensioning and Annotating Setting Up a Layout, File Management , Plotting & Printing