GEOMATICS

I. Geomatics – a term used to describe the science and technology of dealing with Earth measurement data.
   a. Field data collection
   b. Processing
   c. Presentation

II. Data Collection
   a. Total Station – ground based application using total station instrument
   b. GPS – ground based application using satellite positioning
   c. Laser Scanning – ground based application using a laser array
   d. Aerial Photography – aerial based application using photography
   e. LIDAR – aerial based application using laser array

III. Design & Plotting
   a. Project scale – dependent upon paper size and project size
      1. 1”=20’ or 1:20 or 1 inch = 20 feet
      2. Graphical scale – useful when drawing may be sized up or down
      3. Common scales – 20, 30, 40, 50, 100, 200, 300, 400, 500, 1000....
   b. Title block -

![Figure 8.9 Typical title block.](image)

IV. Contours
   a. Contours – lines drawn on a plan that connect points having the same elevation
   b. Characteristics of contours
      1. Closely spaced contours indicate steep slopes.
      2. Widely spaced contours indicate moderate slopes (spacing here is a relative relationship).
3. Contours must be labeled to give the elevation value. Either each line is labeled or every fifth line is drawn darker (wider) and labeled.
4. Contours are not shown going through buildings.
5. Contours crossing a built horizontal surface (roads, railroads) are straight parallel lines as they cross the facility.
6. Because contours join points of equal elevation, contour lines cannot cross. (Caves present an exception.)
7. Contour lines cannot begin or end on the plan.
8. Depressions and hills look the same; one must note the contour value to distinguish the terrain (some agencies use hachures or shading to identify depressions).
9. Contours deflect uphill at valley lines and downhill at ridge lines. Contour line crossings are perpendicular: U-shaped for ridge crossings, V-shaped for valley crossings.
10. Contour lines must close on themselves, either on the plan or in locations off the plan.
11. The ground slope between contour lines is uniform. If the ground slope is not uniform between the points, additional readings (by total station or level) are taken at the time of the survey.
12. Important points can be further defined by including a spot elevation (height elevation).
13. Contour lines tend to parallel each other on uniform slopes.