



SNS COLLEGE OF TECHNOLOGY
(AN AUTONOMOUS INSTITUTION)
COIMBATORE-35

I BE / I SEMESTER
19GET102-BCM(CIVIL)



LEVELLING

It is the art of determining the relative heights of points on earth's surface. It deals with the measurements in vertical planes.



OBJECTIVES OF LEVELLING

- For execution of many engineering projects of railways, canals, dams, etc.
- To plan for good network of levels keeping the economy and safety
- To give an excellent terrain mapping for project design.
- For improving the accuracy of alignments
- To give proper topography of heights



❖ **Level surface:**

The surface that is normal to the direction of gravity

❖ **Level line:**

It is line lying in level surface

❖ **Horizontal Plane:**

The plane tangential to the level surface at any point

❖ **Vertical plane:**

The plane that contains vertical line at a place is called vertical plane. The vertical line at any point will be perpendicular to the level surface at that point.



❖ **Datum Surface:**

This is an arbitrary surface with reference to which the heights (elevation) are measured and compared.

❖ **Reduced level(R.L.)**

It is the level which is above (or) below the datum

❖ **Back Sight (B.S.):**

It is the first staff reading taken after installing the instrument in any position. This will always be a point of known height.

❖ **Fore Sight (F.S.):**

It is the last staff reading taken on a point before shifting the instrument. This is a point whose height has to be determined.



❖ Intermediate Sight (IS):

It is the intermediate staff reading taken after back sight and before the fore sight. It is done, only when we require two readings for the same position.

❖ Change point(CP):

It indicates the shifting of the instrument. Both B.S. and F.S. are taken on a change point.

❖ Bench mark:

It is fixed point of reference known elevation.



INSTRUMENTS FOR LEVELLING

Dumpy Levels

Levelling staff



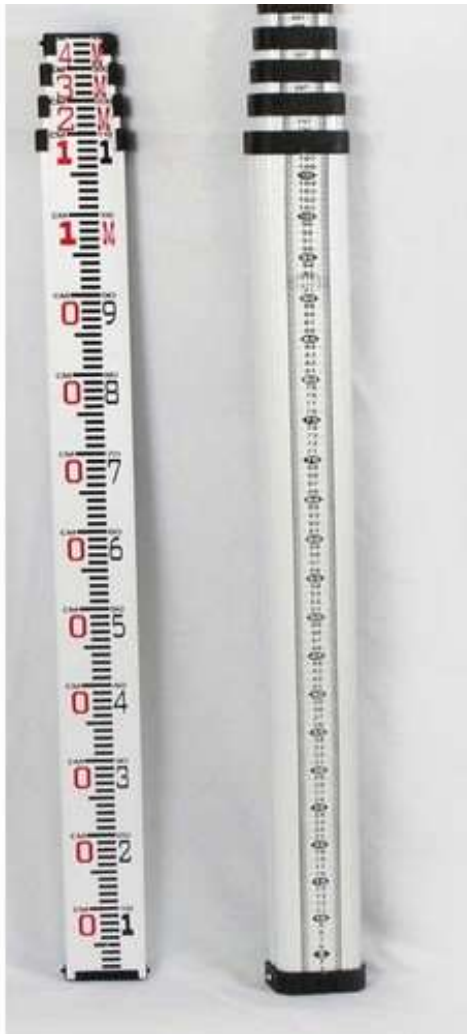
DUMPY LEVEL

Dumpy level





LEVELLING STAFF





PRINCIPLES OF LEVELLING

For accurate work, the distance of BS and FS should be nearly equal. This reduce the error of non-parallelism



THANK YOU...