

**CIVIL ENGINEERING
DEPARTMENT
INTEGRAL UNIVERSITY LUCKNOW**

Advance Survey Field Work

Surveying is the science and art of determining the relative positions of points above, on, or beneath the earth's surface and locating the points in the field.

The work of the surveyor consists of 5 phases

1. Decision Making – selecting method, equipment and final point locations.
2. Fieldwork & Data Collection – making measurements and recording data in the field.
3. Computing & Data Processing – preparing calculations based upon the recorded data to determine locations in a useable form.
4. Mapping or Data Representation – plotting data to produce a map, plat, or chart in the proper form.
5. Stakeout – locating and establishing monuments or stakes in the proper locations in the field.

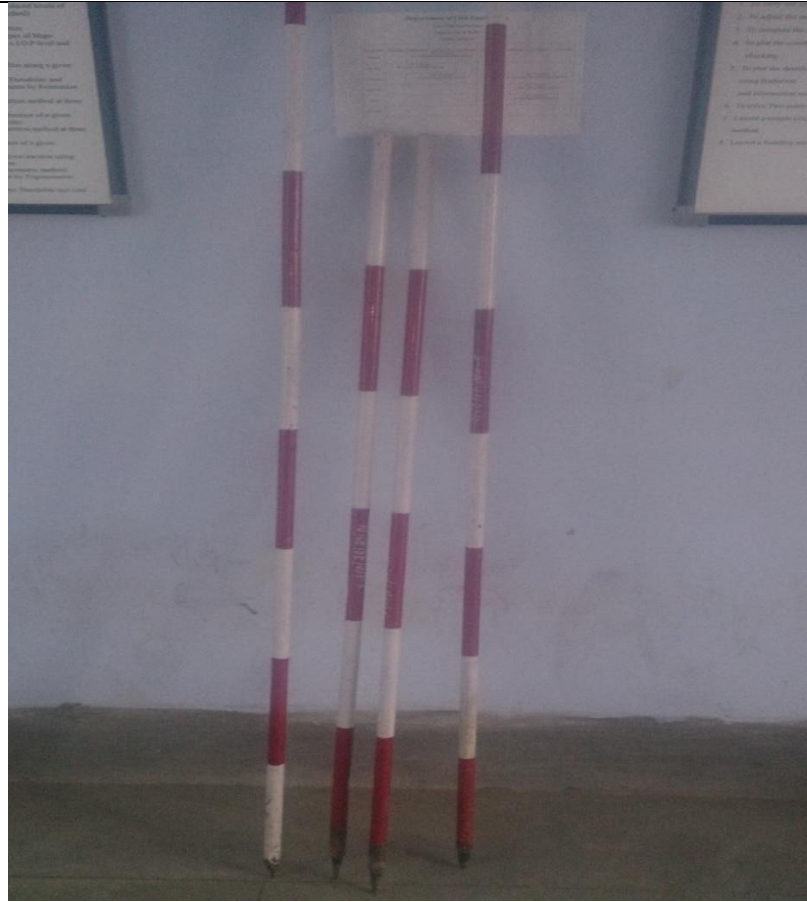
Different categories of Surveying

1. Plane Surveying – surveying with the reference base for fieldwork and computations are assumed to be a flat horizontal surface.
2. Geodetic Surveying – surveying technique to determine relative positions of widely spaced points, lengths, and directions which require the consideration of the size and shape of the earth. (Takes the earth's curvature into account.)

S.NO .	APPARATUS NAME	IMAGE	DISCRIPTION
1-	PLANE TABLE	 <p>The image shows four students in an outdoor setting, likely a field or campus, engaged in a plane table survey. They are gathered around a yellow plane table mounted on a green and white tripod. One student is kneeling and adjusting the tripod's base, while the others are looking at the table. The background shows a grassy area and some buildings in the distance.</p>	<p>In case of plane table survey, the measurements of survey lines of the traverse and their plotting to a suitable scale are done simultaneously.</p> <p>Instruments required: Alidade, Drawing board, peg, Plumbing fork, Spirit level and Trough compass .</p>

2-

RANGING RODS



Ranging rod is an surveying instrument used for marking the position of stations and for sightings of those stations as well as for ranging the straight lines. Now a days these are made of metallic materials only. These are usually 3cm in diameter and 2 m or 3 m long.

3.

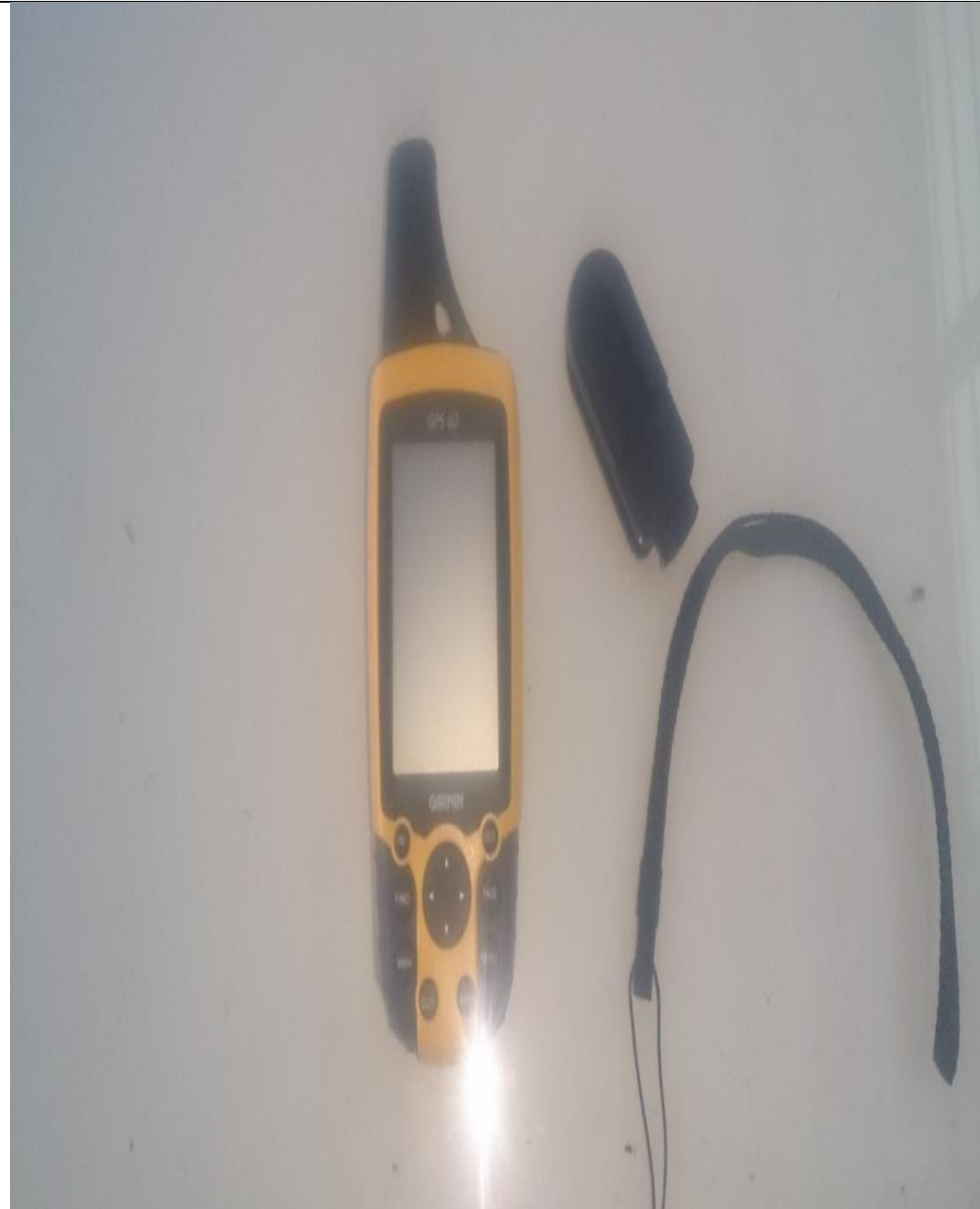
STEREOSCOPE



Stereoscope is a device for viewing a stereoscopic pair of separate images, depicting left-eye and right-eye views of the same scene, as a single three-dimensional image.

4-

GPS



GPS was rapidly adapted for surveying, as it can give a position (Latitude, Longitude and Height) directly, without the need to measure angles and distances between intermediate points. Survey control could now be established almost anywhere and it was only necessary to have a clear view of the sky so the signal from the GPS satellites could be received clearly.

5. Differential Global Positioning System



Differential Global Positioning System (DGPS) is an enhancement to Global Positioning System that provides improved location accuracy, from the 15-meter nominal GPS accuracy to about 10 cm in case of the best implementations. DGPS refers to using a combination of receivers and satellites to reduce/eliminate common receiver based and satellite based errors reduce orbit errors reduce ionospheric and tropospheric errors reduce effects of SA eliminate satellite.

