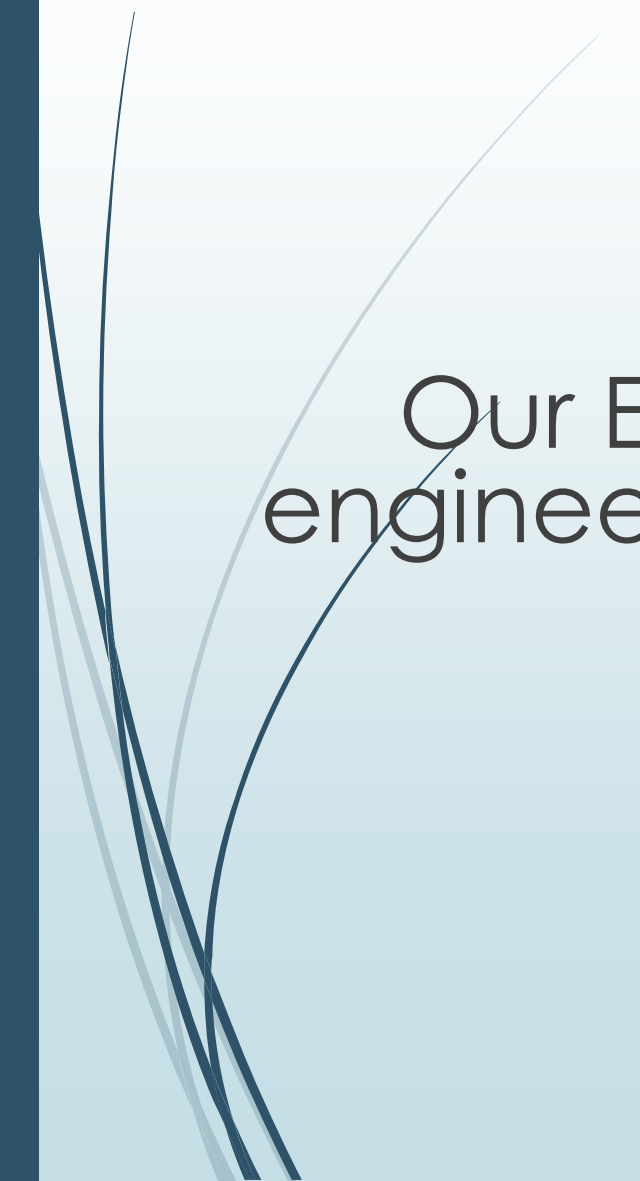


A dark grey arrow pointing to the right is positioned on the left side of the slide, pointing towards the title.

What Surveying and Geomatics Engineer do?

Several thin, curved lines in shades of blue and grey originate from the left edge of the slide and sweep across the background, adding a dynamic feel to the design.

Our Engineers work alongside other engineers, to build our country to make it better place for living.

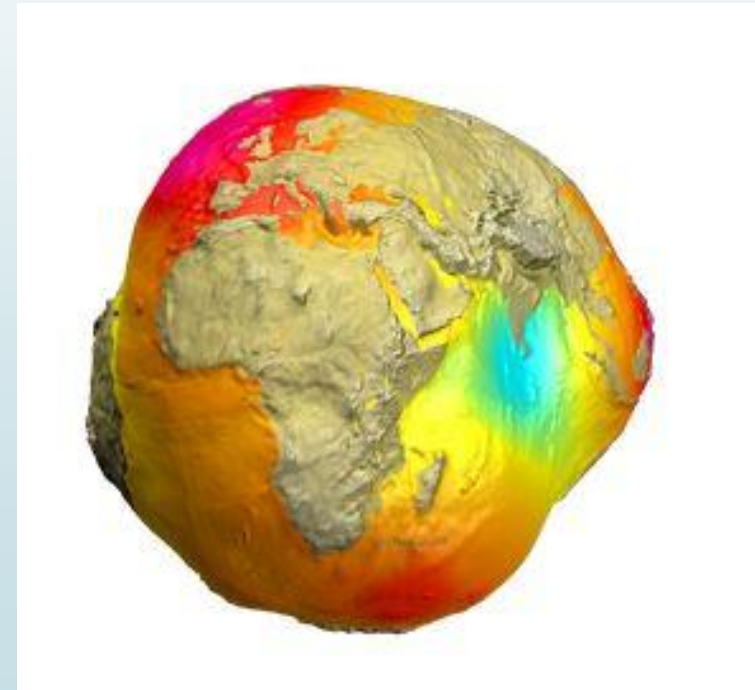
What is there in Surveying and geomatics?

- **Geodesy**
- **GNSS (Global Navigation Satellite System)**
- **Surveying (Cadastral, Topographic, Hydrographic,)**
- **Cartography**
- **GIS (Geographic Information System)**
- **Remote Sensing**
- **Photogrammetry**
- **LIS (Land Information System)**

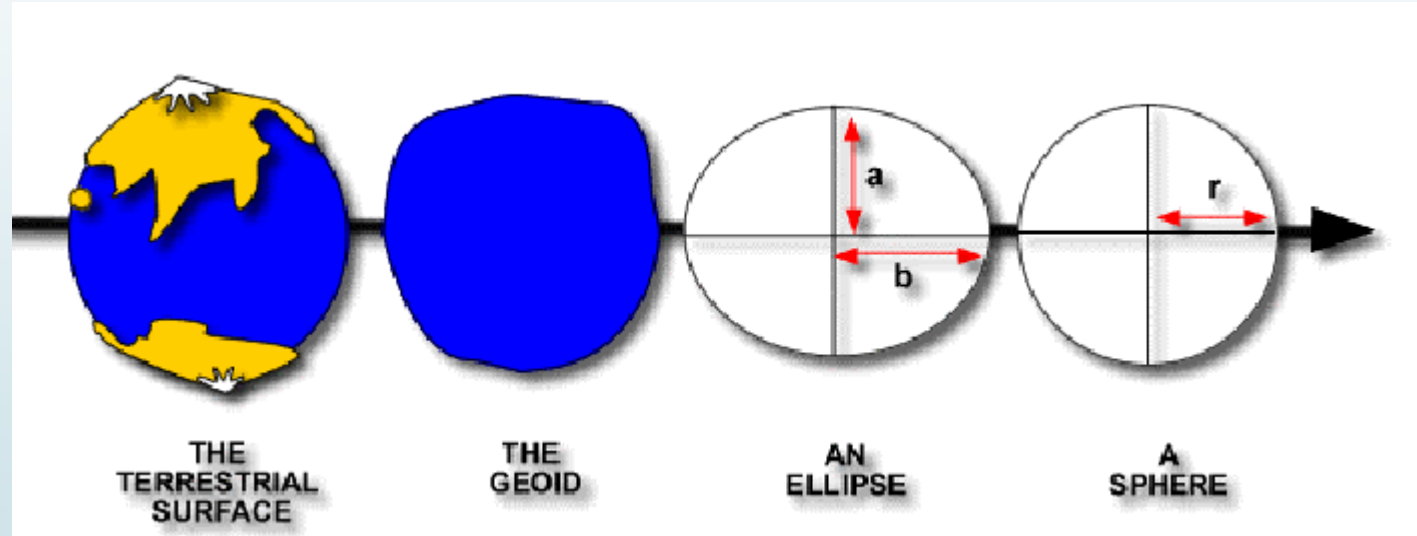
Geodesy

- Geodesy is the science of accurately measuring and understanding three fundamental properties of the Earth:

- 1- Geometric shape,
- 2- Orientation in space
- 3- Gravity field



Approximations of earth surface





What is Global Navigation Satellite System (GNSS)?

➤ GNSS is a common term that defines a satellite system that provides geo-spatial positioning with a worldwide coverage, GNSS includes the following systems:

➤ **Global systems:**

- GPS (United State)
- Galileo (European)
- GLONASS (Russian)
- Beidou (Chinese)

➤ **Regional systems:**

- IRNSS (Indian)
- QZSS (Japan)





Surveying

What is Surveying?

Surveying is the science of determining the relative position of points on, above or beneath the surface of the earth by measurements and representing them on a sheet of paper known as plan or map.

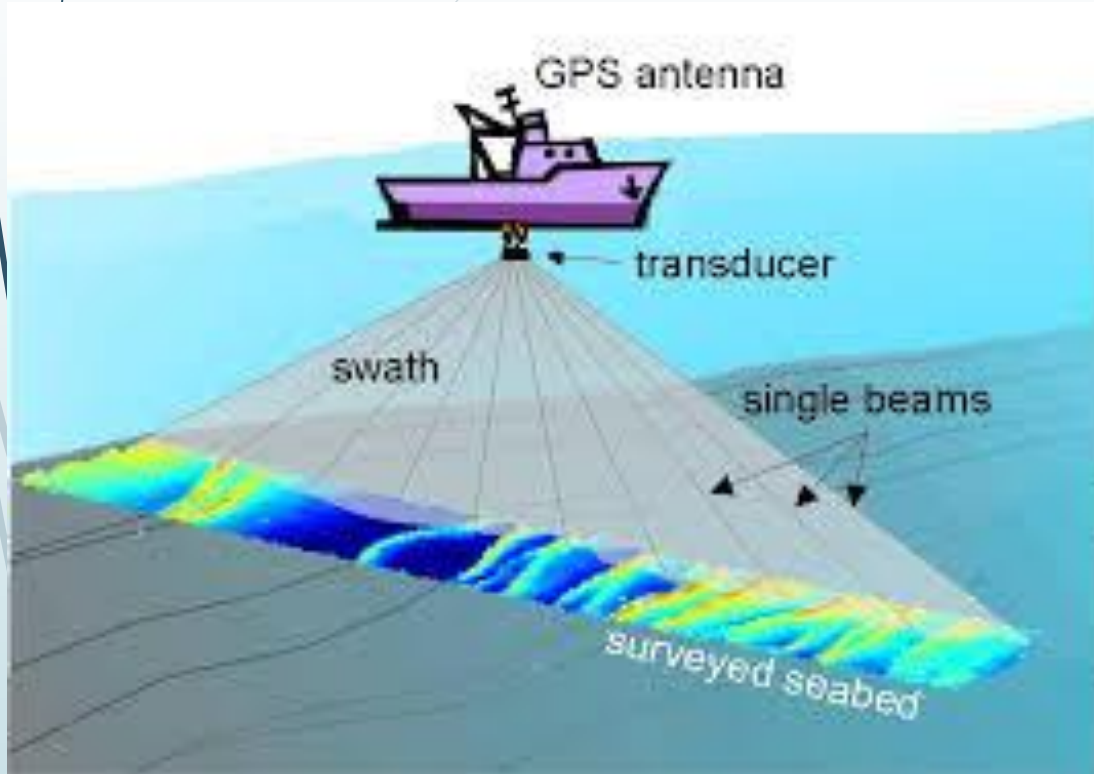
Types of Surveying:

- 1- Geodetic Surveying
- 2- Plane Surveying

Plan Surveying



Hydrographic Surveying

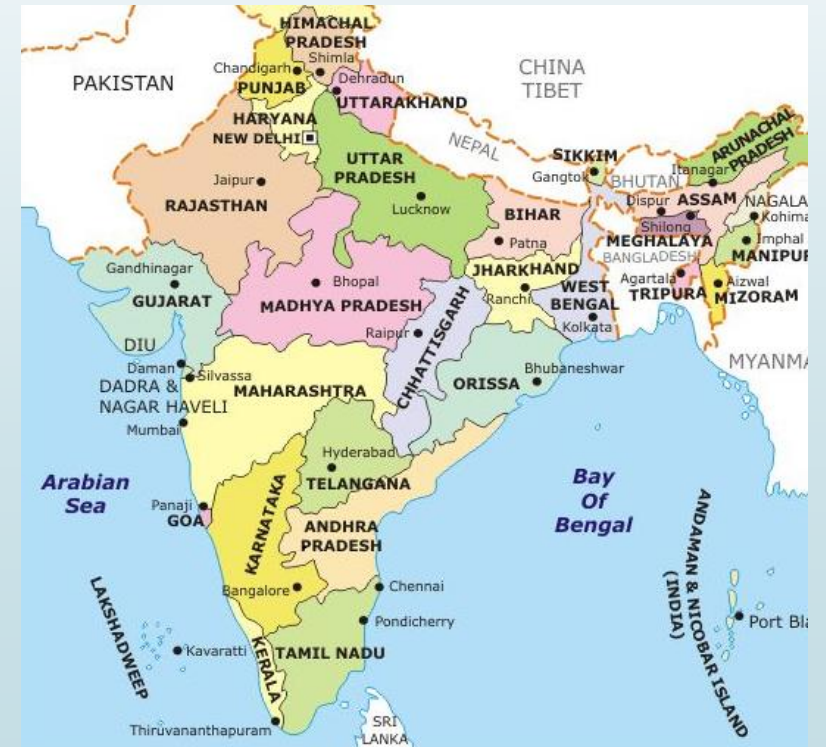


Construction Surveying



Cartography

- Cartography is the art and sciences of making maps.
- Political maps, shows borders on regions
- physical maps, shows rivers, mountains, lakes,
- road maps, shows transportation networks
- etc.



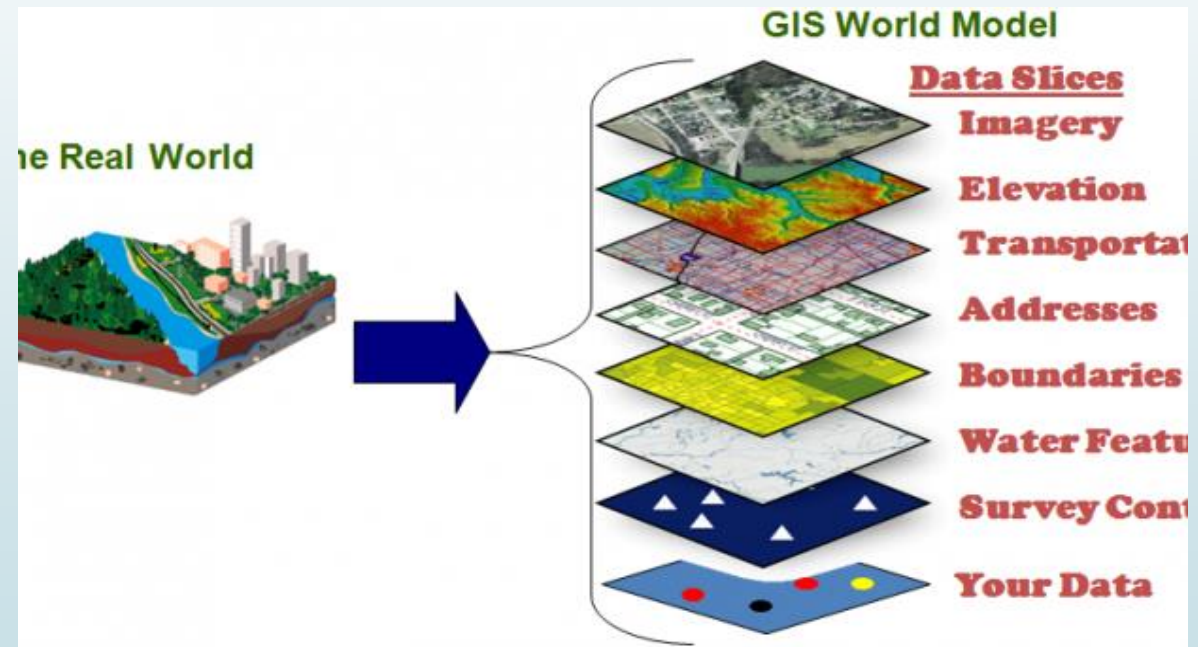
GIS (Geographic Information System)

► What is GIS?

It is a frame work for gathering, managing, and analyzing data.

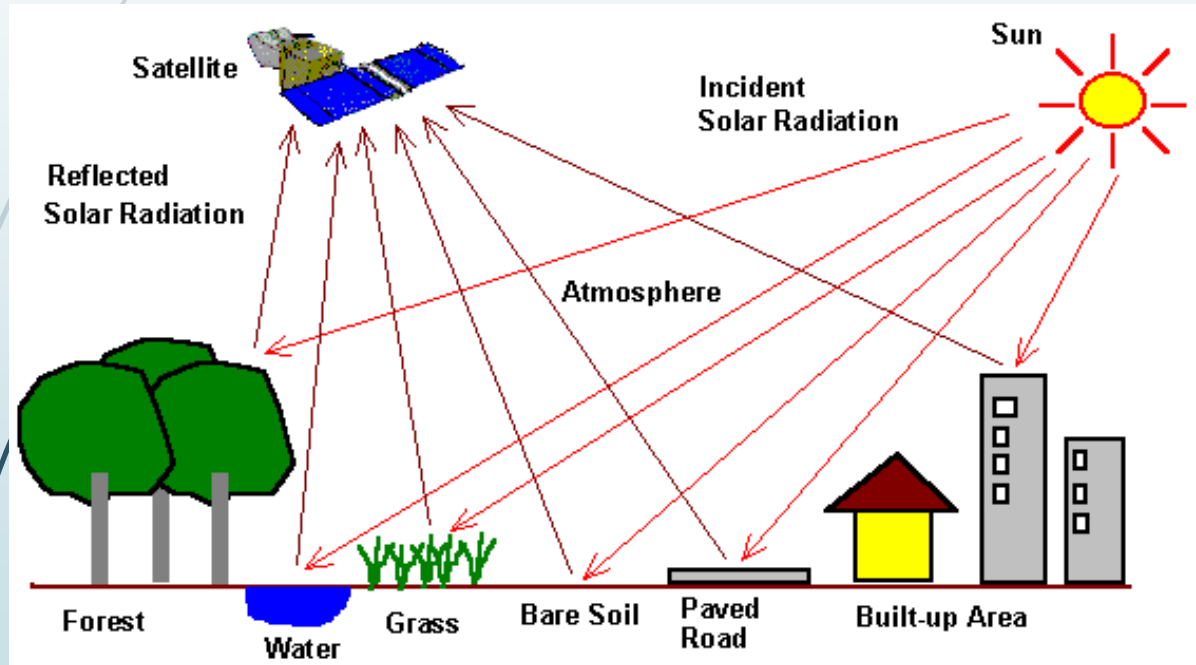
➤ Uses:

- Mapping. ...
- Telecom and Network Services. ...
- Urban planning. ...
- Transportation Planning. ...
- Environmental Impact Analysis. ...
- Agricultural Applications. ...
- Etc.



Remote sensing

- What is Remote Sensing: It is the process of acquiring information about objects without actual physical contact with it. by measuring its reflected and emitted radiation at a distance from the targeted area.

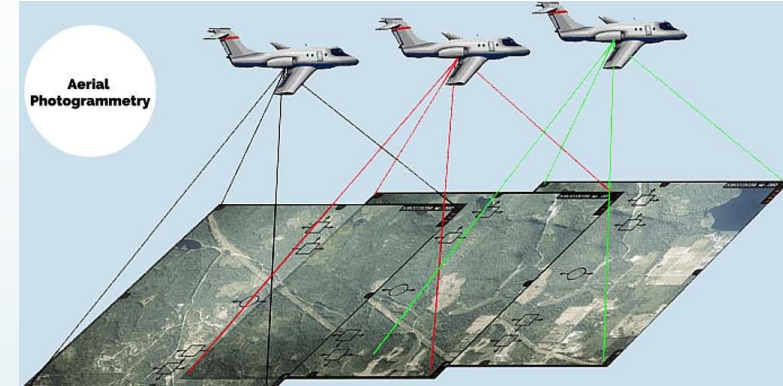


Cameras on satellites and airplanes take images of large areas on the Earth's surface, allowing us to see much more than we can standing on the ground.

The **applications of remote sensing** include land-use mapping, weather forecasting, environmental study, natural hazards study, and resource exploration

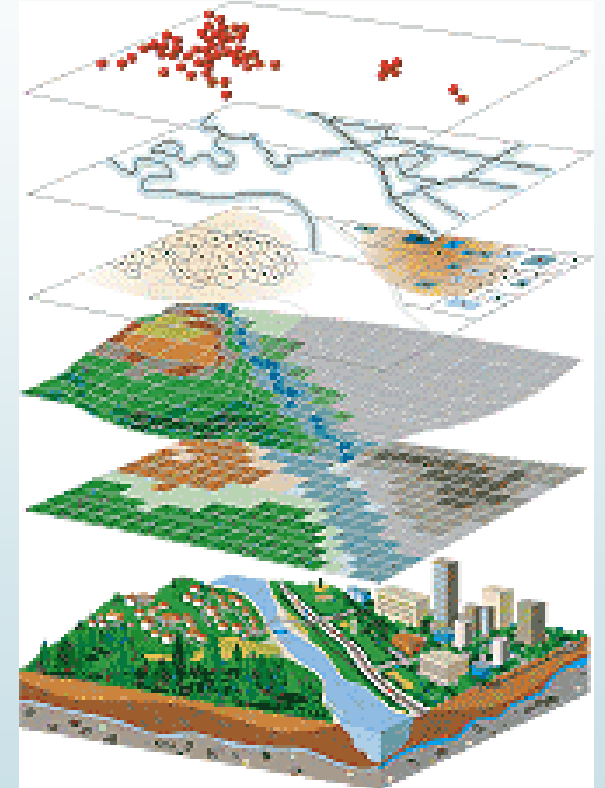
Photogrammetry

- It is the art, sciences, and technologies of obtaining reliable information about physical objects from overlapping photographs taken from air or on the ground surfaces.
- Uses:** Land Surveying, Traffic Accident, Geology, Cultural Heritage, etc.



Land Information System (LIS)

- Land Information System (LIS) is a Geographic Information System for cadastral and land-use mapping, typically consisting of an accurate, current and reliable land record cadaster and associated attributes.



On the left side of the slide, there is a dark grey arrow pointing to the right, positioned near the top. Below it, several thin, curved lines in shades of blue and grey sweep upwards and outwards, creating a dynamic, abstract design.

Thank You