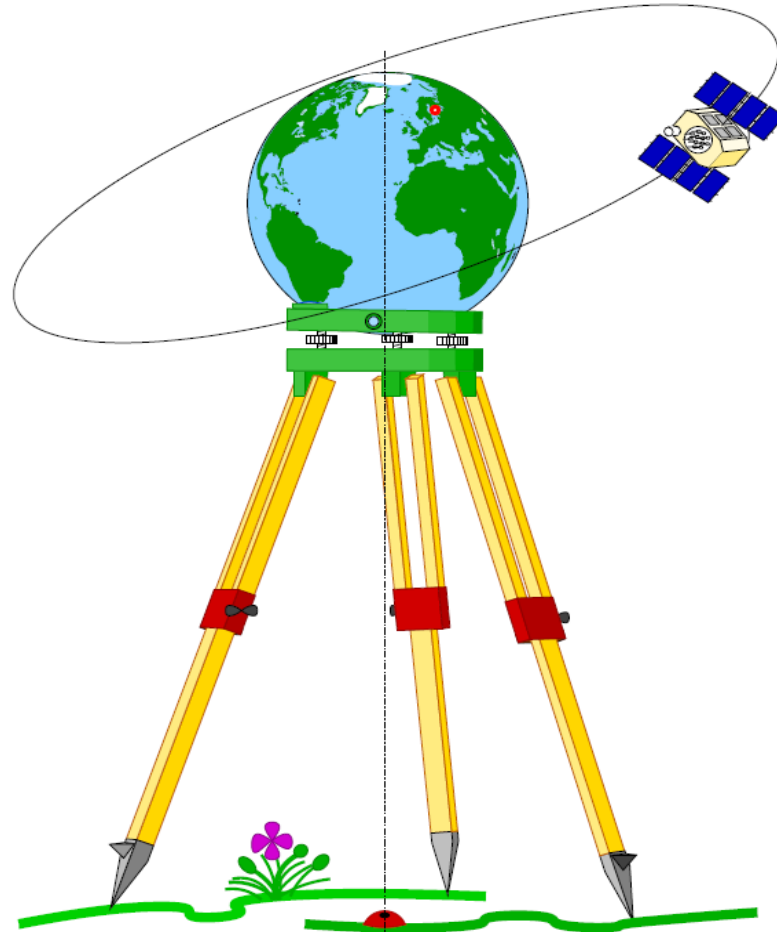


Geodesy



Lecture (1): Geodesy-Review

- Definition of geodesy
- Types of geodesy
- **Figure of the earth**
- **Geoid**
- **Ellipsoid**
 - **Rotate an ellipse around an axis**
- **Relation between geoid & ellipsoid in term of height**
- **Parameters of ellipsoid**
- **Radii of curvature**

Lecture (2)

Coordinate Systems in Geodesy

- **Astronomical coordinate system**
- **Geographic (Geodetic) Coordinate system**
- **Cartesian geodetic coordinate system (x, y, z)**
- **Local geodetic coordinate system (x, y, z)**
- **Relation between astronomic and geodetic coordinate systems**
- **Relation between astronomic and geodetic coordinate systems**

Lecture (3)

- **Transformations**
- **Transformations parameters**
- **Transformation between local and geodetic coordinate system**

Lecture (4)

- **Intersection & Resection**
- **Intersection by angles**
- **Resection**
- **Spherical Excess**
- **Right spherical triangles**
- **General spherical triangle**
- **Area**
- **Auxiliary plane triangle**

Lecture (5)

- Distances on ellipsoid
- Length of meridian arc on an ellipsoid
- CALCULATIONS USING SMALL CIRCLES
(PARALLELS OF LATITUDE)
- MERIDIAN CONVERGENCE

Lecture (6)

- **Normal Section Azimuth**
- **Geodesics**
- **Direct / Inverse Problems**
 - *The Direct Problem*
 - *The Inverse Problem*

Lecture (7)

Trigonometric Leveling

1. Principles

2. Elevation determination

3. Errors

Lecture (8)

- **Geodetic computations**
 - 2D
 - 3D