



## Six week certificate course on **Geographic Information systems**

A **Geographic Information System (GIS)** is a computer-based tool for mapping and analyzing things that exist and events that happen on earth. GIS is valuable to a wide range of public and private enterprises for explaining events, predicting outcomes, and planning strategies. The major challenges we face in the world today—overpopulation, pollution, deforestation, natural disasters and Business Challenges like locating retail outlets, Banks, Hospitals, Client locations - have a critical geographic dimension.

**GIS** Technology is evolving from technology that addresses specific applications to a broad-based information system. Its value goes beyond increased efficiency, cost savings, and other basic monetary benefits. Because it is a more powerful method for collectively sharing knowledge, GIS will be fundamental to the future. Organizations that make their geographic information available will be more efficient, more successful, and more accountable. By developing GIS organizations have been able to:

- Reduce data Redundancy
- Improve Response Time
- Visualize Relationships
- Analyze Trends
- Improve the Management of Resources
- Increase efficiency
- Improve tools for Decision making

The course is designed to educate students and professionals from various backgrounds in Spatial Technologies. The course provides for a grounding in range of topics from; global positioning system (GPS), Remote Sensing, Photogrammetry and GIS.

The course is divided into following four modules. Module A consists of Mapping and GIS, Module B consists of Satellite Remote Sensing; Module C consists of Ariel Photogrammetry and Module D consists of GPS. The training program includes study materials, collaborative discussions, self-assessed exercises, tutorials, hands-on assignments, examinations, contact with domain experts.

### **Module - A: Mapping and Geographic Information System**

Basics of GIS and Mapping  
Maps & Map Projections  
Data Capture Techniques  
Vector based and Raster Based GIS  
GIS Databases  
Data Analysis  
Thematic Map Preparation



### **Module - B: Satellite Remote Sensing**

Fundamentals  
Satellite Remote Sensing platforms and Sensors  
Image Interpretation and field verification  
Applications of Remote Sensing

### **Module-C: Ariel Photogrammetry**

Fundamentals in Photogrammetry& Aerial Photography  
Aerial Triangulation  
3D-Digitization  
DTM / DEM Creation  
OrthoImage Generation  
Digital Map Creation

### **Module - D: Global Positioning System (GPS)**

Geodesy  
Basics of GPS  
Observables and Biases  
Errors and Limitations  
Type and Applications of GPS

### **Module - E: Applications of Spatial Technologies**

Financial&Insurance Services  
Civil Engineering  
Governments(Land Records, Urban&Municipal Planning etc.)  
Agriculture  
Environment  
Health  
Utilities(Power, Telecom etc.)