

DIPLOMA IN GEOINFORMATICS (DGI)

NIGMT Foundation has designed this short term certificate courses for candidates who wish to learn GIS, RS, LiDAR & Photogrammetry and accelerate his/her career within this field.

Expected outcome of this Programme

The courses are uniquely designed by industry top technical experts to ensure the meaningful skill development which enables the candidate to gain insight about technology and make them ready to start/accelerate their career immediately after completing this course.

Technologies covered

We have four technologies which you can learn in different modes of study accordingly:

Six months program in regular weekdays

You will learn:

- Geographical Information System
- Remote sensing
- Digital Photogrammetry
- LIDAR

Course duration:

Four months technical training and 2 months live project training.

Six months program in regular weekends

You will learn:

- Geographical Information System
- Remote sensing
- Digital Photogrammetry
- LIDAR

Course duration:

Four months technical training and 2 months live project training.

Six months program in online weekends

You will learn:

- Geographical Information System

- Remote sensing
- LIDAR

Course duration:

Six months technical training.

Minimum eligibility

- Graduation/ (10+2+3) or higher degree.
- Engineering (IT, Computer Science, Civil Engineering).
- Geography, Geology, Disaster management, Agriculture management.

Table of Contents

1. GIS: Learn GIS to make maps and perform various analysis on Spatial data.

- Introduction and objectives of GIS
- Concept of Geospatial data
- GIS data Sources
- GIS data models
- Geo-referencing
- Projection and scaling
- Making GIS layers in different platforms
- Digitization (Point, Line, Polygon)
- GIS data conversion / Importing and exporting of data from one to another platforms
- Data collection for GIS base Mapping
- GIS data linking (Spatial and Non-spatial)
- Topology building
- Query building
- Map Composition (Thematic Mapping)
- Base Map generation techniques for surveying
- Land use and Land cover Mapping
- Making Digital database /Making Geodata Base of Land Records
- Analysis for GIS (Buffer, Overlay, Watershed, Network)
- Applications of GIS layers

2. Remote Sensing: Learn Remote Sensing to know about and acquire the satellite Imageries.

- Introduction and objectives of RS
- Electromagnetic Spectrum
- Interaction with earth surface
- Spectral signature
- Platforms: ground base, air borne, space borne
- Sun-synchronous and geostationary satellites
- Indian Remote Sensing Satellites
- Satellite data types: FCC and PAN images
- Satellite Image study in Different bands
- Stacking of different bands of Image
- Subset, mosaic of satellite imagery
- Multi spectral concept of image interpretation
- Application of remote sensing in various fields

3. Photogrammetry:

- Fundamental concept and basic information and specification of Aerial photography.
- Introduction and objectives of Aerial camera, Metric camera
- Camera calibration for Aerial Photography, Aerial film and types of Aerial camera lenses and lens distortion
- Geometry, Projection and properties of Aerial Photographs,
- Overlapping on Aerial Photographs and their types,
- Photogrammetric workflow
- Photogrammetric platforms
- Interpretation Elements of Air Photo
- Accuracy, Error, Precision
- Introduction and objectives of Stereo Photogrammetry
- Aerial triangulation
- Generating geospatial datasets
- DEM and orthophoto's generation
- Concept of Mass points and Break lines
- Contours and their types Volumetric Analysis.
- Concept of DEM, DTM, TIN, GRID and DSM.
- Aerial Photo mosaic
- Photogrammetric product and its application.
- Applications of Photogrammetric products for mapping and planning

4. LiDAR:

- Basic concept of LiDAR Technology
- Principle of LiDAR Technology
- Types of LiDAR data
- Basic architecture of LiDAR technology
- LiDAR System Specification
- Data Storage
- Software for Quality Assessment
- Introduction and objectives of LiDAR data processing
- Products of LiDAR application
- Contour generation
- Source of Errors in LiDAR data
- Application of LiDAR for mapping and planning, volumetric analysis, power sector, smart city, topographical study