

DAY 1

Geographical Information Systems (GIS) Fundamentals

- Geographic Information System (GIS) Applications in General
- Geographic Information System (GIS) Applications in Transportation Studies
- Major Functions of Geographic Information System (GIS)
- Relating Information from Multiple Sources
- Geographic Data and the Database
 - Data Acquisition
 - Data Integration
 - Data Structure
 - Data Modeling
- ArcMap Practice

DAY 2

Understanding Geographic Information System (GIS) Maps

- Data Information
 - Spatial data
 - Geographic Information System (GIS) Database
 - Raster vs. Vector Data
- GIS Shapefiles
 - ESRI Shapefile format
- Displaying and Navigating Geographic Information System (GIS) Maps
- Feature Attributes
 - Census Units
 - The Point, Line, Polygon Data

DAY 3

Data Collection

- Global Positioning System (GPS)
- Geographic Data Library
- Census Data
- Transportation Data and Analytics with Geographic Information System (GIS)

- Geospatial Crash Analysis

DAY 4

Visualization and Data Processing

- Symbolizing and Labeling Geographic Information System (GIS) Data
- Continuous and Categorical Data
- Classification Methods
- Normalization
- Geographic Information System (GIS) Data Query
 - Classification
 - Identify, Select, Find
 - Select Features by Attributes
- Joining and Relating Tables
- Spatial Joining
- Dissolving and Clipping layers

DAY 5

Geospatial Analysis and Hotspot Analysis

- Introduction to Spatial Analysis
- Buffering Features
- Overlaying Data
- Spatial Analysis Methods to Identify Hotspots
 - Fishnet-based Analysis
 - Kernel Density Estimation