

Level I: Integration of GIS for Infrastructure Management and Risk Analysis (2-Day)

(For attendees with NO GIS background)

Module 1: Foundations of GIS

- Introduction to ArcGIS
- Introduction to geographic data
- Introduction to spatial query (SQL)
- Advanced spatial query
- Working with symbology
- Creating image tiles to create backdrop
- Add x,y data from GPS to a map
- Import Autocad Files
- Working with layers in ArcGIS
- Import tabular information from other software
- Creating maps layout
- Introduction to Geo-database

Module 2: Introduction to Spatial Analysis

- Geocoding infrastructures
- Select and summarize planning records

Module 3: Applications

- Spatial analysis for Site Selection:
 - Case Study 1:
 - Case study 2:
- Aging infrastructure analysis and setting priorities
 - Case Study 1:
- Case Study 2: Asset allocation Decisions
 - Case Study 1:
- Introduction to location quotient analysis
- Calculating accessibility indices

Level II: Integration of GIS for Infrastructure Management and Risk Analysis (2-Day) **(for attendees with some GIS experience)**

Module I: Undertake Effective Urban Management Using Spatial Data

- Create a zoning map of permissible activities
- Establish land for a university's future expansion
- Analyze the basic community
- Select and summarize planning records
- Create a spatial-temporal database for monitoring
- Analyze the existing land use pattern and zones within a City
- Examine population trends for future land use and zoning analysis

Module 2: Optimizing Your Site Selection Process Using Spatial Data

- Site Selection for Infrastructure
 - Preprocessing and creation of spatial data
 - Constraint and opportunity analysis using spatial data
 - Applying Criteria Importance Ratio (CIR)
 - Generate final land suitability map

Module 3: Impact Assessment

- Environmental impact assessment for a future building
- Spatial analysis of a community response and social identity
- Undertake a location quotient analysis
- Undertake a visual assessment of a proposed building development

Module 4: Strategic Planning with Spatial Component

- Map sustainable development indicators in a Regional Growth Management Framework
- Use GIS to determine regional transportation and infrastructure priorities
- Analyze public response to proposed projects
- Impact of the new plant on a watershed's future population