

# **VIRTUAL TRAINING - QGIS**



Virtual training - QGIS

GIS CONSULANT AND TRAINER

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# 1. Fundamentals of GIS: Basic Spatial concepts

- i. GIS
- ii. Why GIS?
- iii. Why prefer QGIS (Open source vs Licensed GIS sources)?
- iv. QGIS installation and interface
- v. Different data types and data formats
- vi. Geographic and Projected coordinate systems, UTM Zone and EPSG.
- vii. The concept of Georeferencing and its importance in real life applications
- viii. The concept of ground control points, their importance and Transformation settings.
- ix. The concept of Digitisation and Topology.
- x. The concept of mapping and map layers.
- xi. The process of map making, story telling and data visualisation.
- xii. Datum, map scale, map rotation etc.
- 2. Learn about QGIS Graphic User Interface (GUI).
  - i. Menu toolbar
  - ii. Project toolbar/Side toolbar
  - iii. Layers panel
  - iv. Browser Panel
  - v. Locator toolbar
  - vi. Status bar
  - vii. Map canvas and Map
  - viii. Navigation Toolbar

3. Practically understand the data type and format loading using different ways/methods in the QGIS workspace and Create a "Map".

## i. Data types

- a. Vector
- b. Raster

- c. Delimited text
- d. GeoPackage Database
- e. WMS/WMTS

# ii. Data Formats

- a. Shapefiles layer
- b. GeoPackage layer
- c. Temporary scratch layer
- d. Keyhole Markup Language (KML)

#### 4. Get acquainted with Raster data

- i. Loading Raster ii. Raster Data Formats
  - a. GeoTIFF, JPEG, SRTM etc.
- iii. Create beautiful raster maps through
- a. Raster symbology
- b. Raster enhancement
- c. Blend effects
- d. Raster calculation
- d. Contour Polygons
- e. Histogram computation
- f. Raster shading (combined to multidirectional) and rendering
- 5. Georeferencing raster: Scanned/raster georeferencing using
- a. Point to Point,
- b. image to map
- c. georeferencing by shape.

## 5. Raster and terrain analysis

- a. Query Raster
- b. Merge Raster
- c. Clip Raster
- d. Project Raster
- e. Conversion to vector
- f. Extraction
- g. Hillshade
- h. Slope
- i. Aspect
- j. Relief
- j. Contouring
- k. Reclassify

6. The process of data visualization through changing the "Symbology and its structure".

- i. Simple Fill (for each vector type,ex., Polygon, Polyline and Point features)
  - a. Scale-based visibility
  - b. Add Symbol layers
  - c. Order Symbol levels
- ii. Vector data classification
  - a. Understanding of Layer Styling panel
  - b. Simple Labels and Double labels
  - c. Style Classification mode
  - d. Categorised
  - e. Graduated
  - f. Rule-based
  - g. Heat map

- h. Sized points
- iii. Vector data Creation
  - a. Create polygon, polyline and point features
  - b. Feature topology
  - c. Snapping
  - d. Convert one feature to another feature
  - e. Vector editing/delete
  - f. Split features
  - g. Merge features
  - h. Clip features
  - iv. Vector conversions to raster and other formats.
- 7. Interactive mapping and hands-on training through
- i. Vector feature analysis
  - a. Geoprocessing Tools (Clip, dissolve, Union etc.
  - b. Geometry Tools (Count points, Nearest neighbour etc.
  - c. Spatial Join, Query
  - d. Analysis Tools
  - e. Research tools
  - f. Data management tools

ii. Vector data transformations and projections from geographic coordinate system to projected coordinate system

- a. Create your own Coordinate reference system
- b. Adding functionality with plugins.
- c. Digital elevation models

- 8. Detailed map composing or layout generation using through editing process of
- a. Legend and Patch
- b. Grids
- c. North arrow
- d. Label
- e. Scalebar
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