VIRTUAL TRAINING - QGIS

GIS CONSULANT AND TRAINER

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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