February
2020

COURSE CATALOG

SpatialThoughts

COMPANY

Specialized in open-source geospatial training

India's only QGIS.org certified training provider

Provides on-site training across India and APAC

TRAINER

UJAVAL GANDHI

World-renowned GIS Expert

15+ years of corporate experience

Visiting faculty at University of Johannesburg

Deep technical expertise on QGIS, Python and Google Earth Engine

linkedin.com/in/spatialthoughts/

COURSES

ESSENTIAL QGIS

ADVANCED QGIS

CUSTOMIZING QGIS WITH PYTHON

GIS

MASTERING GDAL TOOLS

APPLIED REMOTE SENSING WITH GOOGLE EARTH ENGINE

REMOTE SENSING

SPATIAL DATA ANALYTICS AND VISUALIZATION

DATA SCIENCE

ESSENTIAL QGIS

2 DAYS (16 HOURS) ✓ WITH QGIS.ORG CERTIFICATION

A 2-day intensive hands-on course to learn practical skills for working with geospatial data in QGIS.

PREREQUISITES

None

LEARNING OUTCOMES

- Familiarity with QGIS interface and workflows
- View, edit, and manage all types of spatial data
- Perform spatial analysis
- Cartography and map making

COURSE OUTLINE

DAY 1

- Introduction to QGIS
- Fundamental GIS concepts
- Overview of the QGIS project
- Navigating the QGIS Interface
- Working with Vector Data Layers
- Consuming Web Services
- Working with Raster Data Layers
- Styles and Symbology
- Creating Maps

DAY 2

- Georeferencing
- Data Editing
- Working with Temporal data
- Working with Geotagged Photos
- Multi-Criteria Overlay Analysis
- Must-have Plugins
- Concluding Remarks

ADVANCED QGIS

1 DAY (8 HOURS) ✓ WITH QGIS.ORG CERTIFICATION

Full-day hands-on course covering new features and advanced topics in QGIS. This class is ideal for participants who already use QGIS and want to take their skills to the next level.

PREREQUISITES

- Basic Knowledge of Spatial Analysis
- Familiarity with QGIS

LEARNING OUTCOMES

- Automate GIS Workflows
- Increase productivity and reduce errors
- Create beautiful visualizations
- Solve complex spatial analysis problems

COURSE OUTLINE

- Processing Framework
- Processing Toolbox
  - In-place Editing
  - Batch Processing
- Graphical Modeler
- Enabling Reproducible Workflows
- 2D Animations
- 3D Animations
- Summary Aggregate Expressions

CUSTOMIZING QGIS WITH PYTHON

1 DAY (8 HOURS) ✓ WITH QGIS.ORG CERTIFICATION

A hands-on class that teaches you how to customize QGIS using the Python API. This course is intended for users who want to learn how to use programming techniques to build custom scripts, functions and plugins.

PREREQUISITES

- Basic python knowledge
- Familiarity with QGIS

LEARNING OUTCOMES

- Write scripts with for custom geoprocessing
- Build plugins and processing tools with user interfaces
- Set up actions and custom functions with custom business logic

COURSE OUTLINE

- Where can you use Python in QGIS?
- Qt, PyQt and PyQGIS
- Understanding Classes
- Visual Tour of the PyQGIS API
- Creating Custom Python Actions
- Writing Python Console Scripts
- Writing Standalone Python Scripts
- Writing a Processing Script
- Simplifying Processing Scripts
- Writing Plugins
  - Processing Plugin
  - GUI Plugin
- Writing Python Expression Functions
- Resources for Further Learning

MASTERING GDAL TOOLS

1 DAY (8 HOURS)

GDAL is an open-source library for raster and vector geospatial data formats. The library comes with a vast collection of utility programs that can perform many geoprocessing tasks. This class introduces GDAL utilities with example workflows for processing satellite and aerial imagery.

PREREQUISITES

- Familiarity with satellite image processing

LEARNING OUTCOMES

- Write commands to process large volumes of data
- Effectively work with drone/aerial imagery
- Automate satellite data processing

COURSE OUTLINE

- Running GDAL Commands
- Processing Satellite Data
  - Merging individual bands into RGB composite
  - Apply Histogram Stretch and Color Correction
  - Pan Sharpening
  - Computing NDVI
- Georeferencing
  - Georeferencing images with corner coordinates
  - Georeferencing with GCPs
- Processing of Aerial Imagery
- Multi Criteria Weighted Overlay Analysis
- Running commands in batch

APPLIED REMOTE SENSING WITH GOOGLE EARTH ENGINE

2 DAYS (16 HOURS)

Google Earth Engine is a cloud-based platform that enables large-scale processing of satellite imagery to detect changes, map trends, and quantify differences on the Earth's surface. This 2-day intensive course gives the participants practical skills to use the platform effectively for their remote sensing projects.

PREREQUISITES

- Familiarity with remote sensing concepts

LEARNING OUTCOMES

- Implement remote sensing workflows in Earth Engine
- Scale your analysis to large regions and over long periods of time
- Build interactive apps for data exploration

COURSE OUTLINE

DAY 1

- Introduction to Google Earth Engine
- Introduction to the Code Editor
- Fundamentals of Javascript programming
- Working with Image Collections
- Image Processing
- Import/Export
- Parallel computing with Map/Reduce

DAY 2

- Introduction to Supervised Classification
  - Classifying images
  - Classifying tables
- Accuracy Assessment
- Change Detection
- Building User Interfaces in Earth Engine
- Programming tips

SPATIAL DATA ANALYTICS AND VISUALIZATION

1 DAY (8 HOURS)

Gain a solid understanding of spatial data and open-source tools available to work with it. The participants learn practical skills to analyse spatial patterns, derive location intelligence, and produce stunning visualizations. This course is suited for data scientists, business analysts, journalists, data viz engineers and developers who want to incorporate spatial data intro their workflows.

PREREQUISITES

- None

LEARNING OUTCOMES

- Ability to work with all types of spatial data
- Visualize and analyse location-based datasets
- Integrate spatial data in development workflow

COURSE OUTLINE

- Spatial thinking and modeling spatial data
- Data formats
- What makes spatial 'special'?
  - Common Gotchas and Pitfalls
- Introduction to QGIS
- Analyzing and Mapping Census Data
- Location intelligence with GPS tracks and trajectories
- Analyzing urban transport with anonymized taxi trips data
- Visualizing weather data and climate patterns
- Discovering spatio-temporal patterns with time-series data
- Python libraries for spatial data science
- Introduction to Spatial Databases and Spatial SQL

TESTIMONIALS

"I found the course very helpful as I got to learn and explore so much in QGIS. Also, I got exposed to programming as I had no prior experience with it."

"Classes were really nice. Specially everything has been demonstrated logically. Several tricks I have learnt. Thanks for making the class less boring."

"Great experience, would definitely attend another, great atmosphere created, keep doing what you do its really helpful!"

"I wanted to thank you for your Python tutorial for QGIS. Now I will start my first job as a GIS developer and I have learned a lot of things that will be useful to me thanks to you.“

CONTACT

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