

## AC209 - Advanced GeoServer, PostgreSQL and PostGIS Course

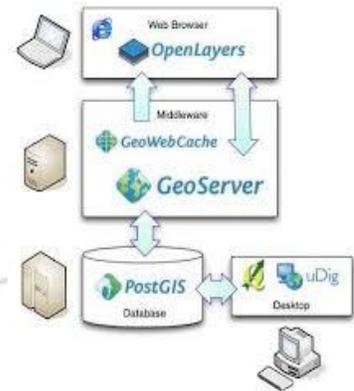
Course Duration: 7 Days

Training Fee: KSH 56,000 | USD 560

Course Registration: [Register Here>>](#)

### 1.0. Introduction

To manage and tame the ever-increasing flow of data, and the parallel flow of data opened up by economical satellite imaging and crowd-sourced mapping, we need tools equal to the task—tools that can persistently store the data, efficiently access it, and powerfully analyze it. We need spatial databases, like PostGIS. PostGIS is a spatial database extender for the PostgreSQL open source relational database management system. It's the most powerful open source spatial database engine. The World Wide Web, having emerged as the leading method for information delivery, has been a godsend for the GIS community. It is not only used to deliver textual data and image data, but also provide the ultimate GIS web-surfing experience using tools on both the delivery end (GeoServer) and on the receiving end.



### 1.1. Course Overview

Would you like to learn how to build an Internet Map Server application using free and open source GIS? Do you want that server to display raster, vector and attribute information and perform spatial analysis and database queries over the Internet? Do you want to learn how to connect your map server to Postgres and PostGIS? If so, this course is for you. Learners will be taken through a step-by-step process of creating spatial databases, loading data from a variety of sources into a spatial database, and performing queries on the data. Learners will then learn how to load, publish and share geospatial data with GeoServer. Finally, you will be introduced to OpenLayers, which will enable you to put dynamic web maps in any web page.

### 1.2. Course Objectives

- To learn how to Install PostgreSQL with PostGIS Functionality;
- Serve data stored in Postgres and PostGIS on the Internet;
- To learn how to install Geoserver, Load GIS data into Geoserver;
- Serve vector, raster, and attribute data on the Internet with Geoserver;
- Learn about most popular open source tools used in Web GIS development: Open Layers.
- Acquire knowledge about spatial databases, how they store information and how you can access it for your own Web GIS applications.

### 1.3. Course Content

#### Working with PostgreSQL with PostGIS

- Introduction Relational database management systems
- Introduction to SQL (standard language for accessing and manipulating databases)
- Concepts about spatial databases

- Spatial data types
- PostgreSQL/PostGIS: your open source spatial database
- PostGIS - install and configure; Set users and permissions
- Create a PostGIS database; load spatial data; Spatial query in QGIS
- Basic geoprocessing in PostGIS
- Integration with GeoServer and Web Mapping
- Displaying Postgres Data as SQL View
- Displaying Postgres Data with SQL filters

### Working with GeoServer

- Getting started with installation and the GeoServer Interface.
- Bringing data into GeoServer and displaying the results; Adding, Styling, and Displaying Shapefiles; Adding, Styling, and Displaying Data from Postgres.
- Processing client Requests on the server; Displaying Postgres Data as a SQL View; Serving Data from GeoServer to QGIS.
- Interacting with GeoServer from the Client with Open Layers; Using Open layers to request data from the GeoServer; adding vector data from GeoServer to your open layers' application.

### Working with OpenLayers

- Introduction to OpenLayers
- Creating your first web map Working with vector and raster layers; Vector layers; Raster layers; Layers Symbology
- Adding controls to the map
- Interact with map elements

### 1.4. Case Study

Developing Nairobi County Web Mapping Application

### 1.5. Expected Outcomes

At the end of this training module, learners are expected to:

- Be proficient in working with open source spatial databases, with a focus on PostGIS
- Be proficient in working with GeoServer
- Be proficient in working with OpenLayers to create web maps and applications

### 1.6. Training Materials (Hardware and Software)

- PostgreSQL with PostGIS extension.
- OpenLayers
- A laptop/PC

### Who Should Attend

- GIS users and experts and surveyors
- Geographers & Cartographers
- IT experts and Database administrators