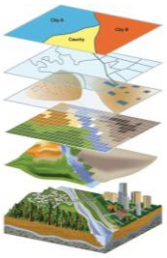
BC102 - The Fundamentals of GIS and Mapping Course

Course Duration: 5 Days
Training Fee: KSH 40,000 | USD 400
Course Registration: **Register Here>>**

1.0. Introduction



GIS is more than just software. People and methods are combined with geospatial software and tools, to enable spatial analysis, manage large datasets, and display information in a map/graphical form. GIS is now used by many organizations as a problem solving and decision support tool because of the capabilities it provides to map where things are, to map quantities, densities, finding what is nearby and so much more. This course introduces you to some of these capabilities in solving real world problems.

1.1. Course Overview

In this course, you will learn how to use GIS data for your own project, and how to create a well-designed map that effectively communicates your message. We will focus on the basic building blocks of GIS data, so that you know what types of GIS files exist, and the implications of choosing one type over another. We'll learn how to take non-GIS data, such as a list of addresses, and convert it into "mappable" data using geocoding. We'll also discuss metadata (which is information about a data set) so you know how to evaluate a data set before you decide to use it, as well as preparing data e.g. by merging and clipping files as needed. Additionally, we will explore how models can be used to automate tasks. Finally, we'll learn about how to take data that we have found and prepared, and design a map using cartographic principles.

1.2. Course Objectives

- To develop an in depth understanding of what GIS is and what it can do
- To map various vector and raster data in order to provide a better understanding of these models
- To understand Cartographic and map design principles
- To develop skills in symbolizing qualitative and quantitative GIS data

1.3. Course Content/Outline

i. **Mapping the real-world using Vector and Raster data**

- GIS File Types and data models
- Spatial Reference Systems
- Vector Data Model
- Creating vector data models through basic digitizing, queries, vector attribute tables, calculating fields
- Introduction to Raster Data Model; Rasterization; Basic raster analysis;
- Metadata – importance, viewing and editing metadata in ArcMap
- Downloading and using GIS data
- Making point data from coordinates and adding x, y data from a table
- Geocoding

- Introduction to Geoprocessing Tools; Clip, Buffer, Merge, etc.

ii. Map Design Principles

- Design Principles – Visual Hierarchy, Figure-Ground Relationship, Contrast, Visual Balance
- Symbolization
- Map Elements – Title, scale Bar, Scale Text, Legend, Neat line, North arrow
- Labels and Annotations
- Typography
- Creating a map layout in ArcMap
- Exporting maps in ArcMap

1.4. Case Study: Map design, production and presentation for Nairobi Metropolitan area.

1.5. Expected Learning Outcomes

On completion of this course, the learners are expected to:

I. Have a full understanding of vector and raster data models
II. Be able to create vector data models and edit them
III. Be able to work with models
IV. Be proficient in creating map layouts

1.6. Training Material

- A Laptop/ PC
- ArcGIS and/or QGIS
- MS Office/Excel