Fundamentals of GIS

For beginners

milsat

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Overview

In this basic training on Geographic Information System(GIS), you'll learn what a GIS is, how to install and get started with some GIS software, how things we find in the real world can be represented on a map, how we record locations using coordinates, how to capture coordinates with a GPS device and how we can create and embellish maps.

In the training project, you will learn to create your own GIS data by tracing geographic features from a satellite image for a location using a theme of your choice or collecting the data on the field using a GPS device. This course will give you a solid foundation as well as the understanding needed to upskill in the field of GIS.

Objectives

The objectives of this training are to:

1. Familiarize you with the world of GIS
2. Set up and install a GIS software on your computer
3. Complete a project from ideation to presentation

Required Materials

You will need a mouse and a computer, to install QGIS or ArcMap and a willing mind to learn!

Assignment and Grading

The assignment structure for this course would be to;

1. Test your knowledge on the understanding of GIS;
2. Help you understand how it can be applied to solve a problem in your preferred field.

Program Schedule

Section	Lessons	Description	Goals	Tasks
1	Introduction to GIS	Overview of Geographical Information System (GIS) Historical evolution of GIS Components of GIS GIS data Types GIS data formats Real-life Applications of GIS Career Opportunities in GIS	Build a solid understanding of GIS and location intelligence	An essay on your understanding of GIS and how it can be applied to your present field.
2	Setting Up your GIS software	Introduction to Geospatial softwares Overview of Open Sources (Qgis) and Commercial Software (Arcmap/ArcGIS Pro) Navigating through software Interfaces Setting up a project workspace	Successful installation of all GIS softwares	A video recording or step by step guide on how to install your preferred GIS software.
3	Coordinate system and Georeferencing in GIS	Coordinate system essentials Understanding projections Importance of Coordinate Systems in Locational Data Collection Georeferencing Definition of Georeferencing Assignment	Proficiency in collecting and converting GIS data from different sources	Utilize a GPS-enabled handheld device to gather 10 Points of Interest (POIs), document their attributes, and extract the data for visualization in a spreadsheet.
4	Basic Geoprocessing tools	Definition and importance of Geoprocessing tools Overview of geoprocessing tools Clip Merge Dissolve Assignment	Successful application of these tools in practical situationsl installation of all GIS softwares	Execute the operations following the instructions in the manual using the basic geoprocessing tools.
5	Querying in GIS	Understanding querying in GIS and its relevance Types of Queries in GIS Attribute Queries Spatial Queries Applications of spatial Queries Assignment	Master the skill of swiftly understanding data through efficient and straightforward queries	Perform simple basic queries as stipulated in the exercise and record your observations.

6	Cartography and map design	Concept of cartography Role and types of Maps: Physical Maps Political Maps Thematic Maps Introduction to Cartographic elements Data Styling Colouration technique Classification methods Crafting your first map Assignment	Ability to create maps that can be easily shared by organizing and transforming raw data.	Using the data provided, create and embellish your first map.

Instructor

- A member of the Milsat Technologies staff.

Training Methodology

- Audiovisual content
- Document
- Assessment tasks

Note: The exercises in this training are continuous,the output of one is the input of another. Therefore it is important to pay proper attention to detail and follow through diligently.