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ArcGIS for Desktop Level 1 course

Introduction

ArcGIS is a geographic information system (GIS) for working with maps and geographic information. It is used for creating and using maps, compiling geographic data, analyzing mapped information, sharing and discovering geographic information, using maps and geographic information in a range of applications, and managing geographic information in a database.

This training introduces participant(s) to both the social and technical aspects of digital mapping. Participant(s) will learn fundamental concepts and techniques in cartography and GIS, including file types, data classification, projections and coordinate systems and elementary analytical techniques in a range of desktop and web-based mapping platforms. In addition to providing the fundamental technical competencies necessary to create maps, participants will develop the critical awareness required to effectively communicate complex social processes through maps.

Objectives

At the end of the course, the participant(s) should have acquired skills to:

- Understand how ArcGIS desktop works
- Understand GIS data and their formats
- Create and use maps
- Compile geographic data
- Use maps and GIS for a wide range of applications
- Manage geographical data in a database

Target group

Social scientists, Technicians, New GIS Users, GIS experts, Cartographers, Geographers, Geoscientist, surveyors, Planners and Resource managers.

Requirements

Basics in computing science

Software

- ESRI ArcGIS trial

Duration

5 days (30hrs)

TRAINING CONTENT

Module I: Introduction to GIS and ArcCatalog

- Introduction
- Components of GIS
- The main GIS functions and GIS Applications

ArcCatalog – Connecting data

- Create / delete connections
- Navigate in the catalog

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- What kind of data used with ArcGIS (internal / external data structure)
- Display contents, geographic and attributes information
- Tools: zoom, pan, identification and navigate in the menu / tabs
- Metadata management

Module II: ArcMap – GIS data management, visualization and selection tools

- Understand maps, vector and raster data
- Define the projected coordinate system
- Add GIS data to your ArcGIS document
- Manage GIS layers (symbology)
- Create data frames

Visualization and selection tools

- Zoom, pan, measure functions
- Display GIS data within zoom ranges
- Bookmarks and tooltips
- Labels
- Geographic and Attribute selections
- SQL language, queries

Module III: Thematic analysis, layout, joins and relations

- Graphic semiology and cartography
- Colors
- Maps by unique value; maps by proportional symbol; maps by data ranges
- How to save your thematic analysis

Layout

- Modify the name of your GIS layers
- Insert a map frame, a title, a north arrow, scale bar, a logo / image /attribute table, an
- Overview map, sources and legal mentions. Create an ATLAS with the Dynamic pages module

Join and relations

- Import a DBASE / EXCEL Table
- Connect to external datasets; joins; export the result of a join
- Setup and display relations between two different data sources
- Setup and display nested relations

Module IV: Digitalization

- From a satellite imagery / aerial photography, digitization of land occupation elements with ArcMap tools
- Advanced digitization tools to update data. Manual and automatic updates Calculation of attribute data values by adding ArcGIS functions (length, surface)
- Metadata updates

Module V: Spatial analysis

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- Geo-treatment: data extraction (split)
- Geo-treatment: proximity analysis, distance calculation, simple and multiple buffer Zones
- Geo- treatment: analysis of superposition (intersection / union)