# HDTC Training Center

## Provide

## Technical proposal of the Training program

# ArcGIS

ArcGIS

# Introduction

In today's data-driven world, Geographic Information Systems (GIS) have become essential tools for analyzing and visualizing spatial information.

This hands-on course is designed to build a strong foundation in using ArcGIS 10.2, equipping participants with the skills to manage geographic data, perform spatial analysis, and create professional map outputs across various fields.

## Program Objectives:

**At the end of this training program, participants will be able to:**

- Provide participants with essential skills to navigate and operate within the ArcGIS environment.
- Understand different types of spatial data and how to organize and manage them effectively.
- Learn basic spatial analysis techniques such as Buffer, Clip, and Intersect.
- Build and apply SQL-based attribute queries for data filtering and analysis.
- Design and export high-quality maps suitable for presentation and decision-making.
- Encourage self-learning by utilizing ArcGIS's built-in help tools and online resources.

## Program Outlines:

★ **Day 1: Getting Started with ArcGIS 10.2**

- **Introduction to GIS and ArcGIS 10.2**
  - What is GIS?
  - Overview of ArcMap, ArcCatalog, and ArcToolbox

- **Navigating the ArcGIS Interface**
  - Toolbars, map documents (.mxd), and data views
  - Saving and organizing projects

- **Managing GIS Data**
  - Using ArcCatalog to explore shapefiles and geodatabases
  - Understanding coordinate systems and projections

- **Adding and Displaying Data**
  - Adding spatial and tabular data
  - Symbolizing layers and customizing legends

## ★ Day 2: Data Analysis and Attribute Management

- **Working with Attribute Tables**
  - Field types, sorting, and calculating values
  - Joining and relating tables
- **Attribute Queries**
  - Using Select by Attributes
  - SQL expressions and logical operators
- **Spatial Analysis Basics**
  - Buffer, clip, and intersect tools
  - Understanding geoprocessing workflows
- **Labeling and Annotation**
  - Dynamic labeling and label classes
  - Converting labels to annotations

## ★ Day 3: Map Layout and Project Finalization

- **Map Layout and Design**
  - Layout view, map elements (legend, scale bar, north arrow)
  - Customizing templates and exporting maps
- **Editing Spatial Data**
  - Creating and modifying features
  - Snapping and topology basics
- **Metadata and Data Management Best Practices**
  - Documenting datasets
  - Organizing project folders and backups
- **Using ArcGIS Help and Resources**
  - Accessing built-in help and online documentation
  - Introduction to Esri's training resources

## Program Outputs:

**By the end of the course, participants will be able to:**

- Navigate ArcMap, ArcCatalog, and Arc Toolbox efficiently.
- Organize and manage GIS data, including shapefiles, geodatabases, and coordinate systems.
- Import and symbolize spatial and tabular data and create informative visualizations.
- Perform basic spatial analysis and understand its practical applications.
- Construct attribute queries using logical expressions and filters.
- Design and layout complete maps with essential map elements (title, legend, scale bar, etc.).
- Utilize ArcGIS help tools to continue learning independently.

## Target Audience:

- ✓ Urban planning and municipal staff
- ✓ Professionals in engineering, environmental, and agricultural fields
- ✓ Data analysts and urban planners
- ✓ Geography, urban studies, and GIS students and graduates
- ✓ Anyone looking to build foundational GIS skills for professional or academic use

## Training methods:

- Technology-Based Learning.
- Simulation in Training.
- On-the-job guidance.
- Trainer-Led Training.
- Work Teams and Roles.
- Films and Videos.
- Case Studies and Workshops.