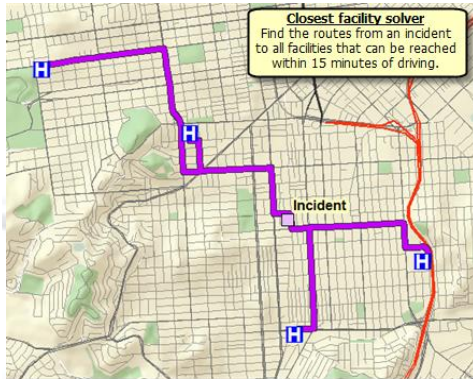## AC206A - Advanced GIS Geometric Networks for Water utility Course

Course Duration: 7 Days
Training Fee: KSH 56,000 | USD 560
Course Registration: **Register Here>>**

1.0. Introduction

Geometric networks provide a way to model common networks and infrastructures found in the real world. Water distribution, electrical lines, gas pipelines, telephone services, and water flow in a stream are all examples of resource flows that can be modeled and analyzed using a geometric network. GIS allows the modelling of all the components that make up one's system, and enables the building of real-world behavior into the modelled features. Once a geometric network is modeled, one can benefit from performing various network analyses.

1.1. Course Overview

This course is an introduction to working with different kinds of networks in GIS. It focuses on how to accurately model utility networks so that your organization can more efficiently manage network assets, quickly respond to network outages, and deliver better customer service. You will learn fundamental concepts of a geometric network and the workflow to create one. Working with various types of geometric network data, you will create and edit geometric networks and perform common analysis tasks. Learners will also be introduced to various aspects of transportation networks, including how they can be modelled and analyzed.

1.2. Course Objectives

- To understand the concepts and basic operations of water and utility networks
- To learn how to model and analyze utility and water and sanitation networks

1.3. Course Content/Outline

- Introduction to network analysis; types of networks – utility networks and transportation networks

Utility/Geometric Networks

- Introduction to Geometric Networks; Capabilities of Geometric Networks; Geometric Networks in ArcGIS;
- Utility Network creation and configuration; Network geoprocessing tools; Validating features;
- Working with utility networks; Editing and analyzing geometric networks;
- Utility network management tasks;

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Transportation Network Analysis

- Introduction to Network Analysis Tools; Creating a network dataset;
- Network Analysis Operations: Shortest path analysis, Best Route, Closest Facility, OD –cost matrix, Network partitioning, Allocation, Location-allocation.

1.4. Case Study: Analyzing Water Geometric Networks of Nyeri Water Company Data

1.5. Expected Outcomes

At the end of this training module, learners should:

- Have an understanding of different types of networks that can be modelled in ArcGIS;
- Be proficient in building geometric networks and configuring them;
- Be able to check network connectivity
- Be able to perform analysis on geometric networks.

1.6. Training Material (Hardware and Software)

- A Laptop or PC
- GIS Desktop
- GIS Spatial Analysis Extension
- GIS Network Analysis Extension
- QGIS Desktop

1.7. Who should attend?

- Spatial data managers who work in the water utility industry;
- GIS technicians who work in water or wastewater industries.
- Anyone who needs to model and manage utilities data using geometric networks

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