AC206B - Advanced GIS Geometric Networks for Power utility Course

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

1.0. Introduction

GIS Geometric networks provide a way to model common networks and infrastructures found in the real world. The 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.

1.5. Course Overview

This course is an introduction to working with different kinds of power utility 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. The learners will also be introduced to various aspects of power/electric networks, including how they can be modelled and analyzed.

1.6. Course Objectives

- To understand the concepts and basic operations of power and electric utility networks
- To learn how to model and analyze electric utility and power connection networks
- Learn how to optimize the power utility networks for optimal performance.

1.7. Course Content/Outline

i.   GIS Network Utility Data Management
- Learn how utilities worldwide use GIS to manage and map the location of millions of miles of overhead and underground circuits.
- Explore how within GIS, the utility's assets can be linked directly to the customer information system, allowing managers to proactively monitor work orders, vegetation management, and outages.

GIS for Sustainable Development

ii.   Planning and Analysis

- Learn how GIS enables distribution utilities to identify vulnerabilities that cause outages, to weigh asset investments, and to understand customer satisfaction.
- Explore GIS workflows set of easy-to-use spatial analysis tools for power utility networks.
- GIS helps you determine the right location for new facilities and new technology such as smart grid sensors and smart meters.

iii.   Workforce Automation

- Perform workforce automation systems allow you to more efficiently schedule and dispatch utility service staff.
- Learn how to increase the workforce productivity by system automation built with GIS technology.
- GIS shows you where crews are working and gives you the status of their work. In addition, street-level routing allows you to reduce fleet costs and gain additional scheduling time, giving you the ability to handle more service calls.

iv.   Situational Awareness

- Create GIS-based graphic outputs and Web-based reporting,
- Demonstrate how the power utility organization is meeting compliance requirements, responding to large outages, or seeing where you are spending your money wisely.
- Meeting regulatory requirements and keeping the public informed becomes less time consuming and easier to accomplish when you use GIS to communicate with regulators and the public.

1.4. Case Study:

Developing A GIS-based Utility Management System for Kenya Power Company in Karen Zone.

1.5. Expected Outputs:

At the end of this module, learners should;

- ❖ Have a basic understanding of Application of GIS in power utility networks;
- ❖ Be proficient in using GIS spatial analysis and network analysis extensions in ArcGIS to manage power utility (electricity, telecoms etc.)
- ❖ Be able to design, develop and manage a GIS-based utility management system.

1.6. Training Material (Hardware and Software)

- i.   A Laptop/PC
- ii.   QGIS/ArcGIS Desktop
- iii.   GIS Spatial Analysis Extension
- iv.   GIS Network Analysis Extension

1.7. Who Should Attend

- Experts in Telecommunication industry.
- Electrical Engineers and technicians.
- GIS technicians who work in the electric or gas industries.