

GIS for Land Surveyors – Concepts, Solutions and Applications – 4.0 Hours

Workshop Description

Summary

This class explores the basics of Geographic Information Systems (GIS) and how this maturing technology can be leveraged by land surveyors. Using both ArcGIS® from Esri® and AutoCAD® Map 3D or AutoCAD® Civil 3D® from Autodesk®, the class shows how surveyors can integrate GIS solutions and opportunities, often without the need for additional software. The class will explore basic definitions of GIS concepts, and examine concepts such as data sources, data types and spatial analysis – all within the framework of actual survey/GIS projects prepared and delivered by the instructors. The class will examine how field data can be brought into a GIS system created in both ArcGIS and AutoCAD®. The class will then explore practical applications of both ArcGIS and AutoCAD, and how the two products can be used seamlessly together to accomplish the creation, editing, analysis and presentation of data in GIS projects.

Topics and Schedule

Geographic Information Systems (GIS) Introduction

- Identifying the Importance of GIS to Land Surveyors

- Exploring the Potential Business Opportunities that Exist for Land Surveyors Utilizing GIS

GIS Elements

- Defining GIS

- Exploring Both Commercial and Open Source GIS Software Packages

- Identifying Typical Hardware Utilized by a GIS

- Defining GIS Data Types

- Conceptualizing Map Features and Linked Attributes

- Listing Federal, State, County, and Local GIS Data Sources

- Discussing GIS Professionals and Their Role in GIS

GIS Concepts

- Comparing and Contrasting AutoCAD Map and ArcGIS ArcMap®

- Displayed Projected Coordinate Systems in ArcGIS ArcMap

- Viewing State Plan Coordinate System Map

- Reviewing Thematic (Statistical) Mapping

- Reviewing Reference Mapping

- Creating a SQL Query to Retrieve Data from a Feature Class

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GIS Analysis

Utilizing ArcGIS ArcMap Geoprocessing Tools to Demonstrate:

- Clips
- Intersects
- Unions
- Buffers
- Merges
- Dissolves

Calculating TR-55 Curve Number of a Small Urban Watershed Using Various ArcGIS ArcMap Geoprocessing Tools

Project Workflow

Demonstrating a GIS / CAD Workflow for an East Coast Project

Demonstrating the Interoperability between GIS and CAD

Creating a Final Deliverable in GIS Format

Learning Objectives

1. Participants will be able to describe GIS data concepts in relation to the processing of survey data as illustrated using the sample survey project used in the course.
2. Participants will be able to describe how GIS solutions store data as illustrated using the sample project used in the course.
3. Participants will be able to describe techniques for the import and editing of GIS data as illustrated using the sample project used in the course.
4. Participants will be able to describe techniques for the presentation and delivery of GIS data as illustrated using the sample project used in the course.

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GIS FOR LAND SURVEYORS – CONCEPTS, SOLUTIONS AND APPLICATIONS – HALF DAY	
Overall Course Length	4.0 Hours
Instructional Time	3.5 HOURS
PROFESSIONAL DEVELOPMENT HOURS (PDHs)	
New York State Land Surveyors	3.5 PDHs
New York State Professional Engineers	3.5 PDHs



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