

Course Name

Application of GIS in Construction Management

Sector Name

Civil Engineering

Document Type

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Application of GIS in Construction Management

Course Introduction

Construction projects involve complex plans, environmental permits, and critical data that detail layout, specifications, and other key design information. For a project to be successful, several aspects must be analyzed and considered, including environmental impact, scheduling conflicts, takeoffs, budgeting, site safety, and logistics.

GIS technology improves the mechanics and management for building new infrastructure by integrating design and site data, interfacing with machine control, and providing the framework for as-built data collection. All those involved in a project, such as engineers, owners, contractors, and the public, rely on the technology to open communication.

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Target Audience

- ✓ Chief Engineer
- ✓ Civil Engineer
- ✓ Commissioning Engineer
- ✓ Construction Engineer

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Learning Objectives

- ✓ Mapping and analyzing CAD data using ArcGIS tools
- ✓ GIS-Based 4D model for planning
- ✓ Creating basic and advanced spatial analysis
- ✓ Configuring web apps for planning outcomes
- ✓ Creating a 3D city presentation
- ✓ Advanced label managing
- ✓ Accessibility analysis for citizens or customers
- ✓ Creating hot spots and temporal patterns
- ✓ Creating a suitability analysis

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Course Outline

✓ DAY 01

What is location?

- ✓ What is GIS?
- ✓ Getting to know the ArcGIS platform
- ✓ Organize GIS Data
- ✓ Data conversion
- ✓ Conversion of CAD-GIS data
- ✓ Explore, import, summarize, and calculate with tabular data
- ✓ Import GPS and Geo-tagged data
- ✓ Join and Spatial Join
- ✓ Raster conversion and Mosaic dataset
- ✓ Data extraction and clipping

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Course Outline

✓ Day 02

Editing GIS Data

- ✓ What types of data can you edit?
- ✓ Create & Delete point, line, polygon data
- ✓ Advanced editing with vector data
- ✓ Raster data creation from vector data
- ✓ Designing a GIS Database and Queries
- ✓ Creating feature dataset, feature class
- ✓ Creating a relationship class
- ✓ Creating a subtype and domain
- ✓ Creating and managing a topology dataset
- ✓ Creating a Query with GIS data

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Course Outline

✓ Day 03

Cartography and Thematic Mapping

- ✓ What is cartography and cartographic methods?
- ✓ Why symbolize your data?
- ✓ Basics of symbology
- ✓ Vector data visualization
- ✓ Raster data visualization
- ✓ What is labeling?
- ✓ Labeling options in ArcGIS
- ✓ Basic and advanced labeling
- ✓ Create a Static Map: Layout Design
- ✓ Import CAD Data, 3D and 4D Modeling

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Course Outline

✓ Day 04

Getting Started with Spatial Analysis

- ✓ Overlay Analysis
- ✓ Introducing overlay
- ✓ How overlay works
- ✓ Impact analysis and physical planning with GIS
- ✓ Choosing the appropriate tool
- ✓ Suitability analysis for a new city/facility/investment area with Model Builder
- ✓ Automating Routine Work and Presentation
- ✓ Automating CAD conversion with Model Builder in ArcGIS Pro
- ✓ Import 3D objects from other formats
- ✓ 3D city presentation with utility networks in ArcGIS Pro

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Course Outline

✓ Day 05

Collect and monitor field Works and Constructions

- ✓ Rule-based modeling with CityEngine
- ✓ BIM-GIS Integration and Indoor Navigation
- ✓ Demo of Advanced Samples for Construction Management
- ✓ Brainstorming with participants

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Jan. 25, 2027	Jan. 29, 2027	5 days	4250.00 \$	UAE , Dubai
May 24, 2027	May 28, 2027	5 days	4250.00 \$	UAE , Dubai
Nov. 29, 2026	Dec. 3, 2026	5 days	4250.00 \$	Oman , Salalah
Dec. 28, 2026	Jan. 1, 2027	5 days	4950.00 \$	Malaysia , Kuala Lumpur

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