

Advanced Geospatial Analysis: GIS, LiDAR Data
Processing, and Modeling

Barcelona (Spain)

17 - 21 November 2025

UK Traininig

PARTNER



Advanced Geospatial Analysis: GIS, LiDAR Data Processing, and Modeling

Code: IT28 From: 17 - 21 November 2025 City: Barcelona (Spain) Fees: 5100 Pound

Introduction

Welcome to the Advanced Geospatial Analysis course, designed to provide participants with a comprehensive understanding of the most modern and advanced techniques in Geographic Information Systems GIS, LiDAR data processing, and modeling. This hands-on course will equip you with the skills and knowledge required to effectively analyze and interpret geospatial data, extract valuable insights, and create sophisticated models for various applications. Whether you're a beginner or a professional, this course provides the necessary tools to work with complex geospatial data and contribute to advanced spatial analysis projects.

Course Objectives

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

- Understand the fundamentals and concepts of GIS, LiDAR data processing, and modeling techniques.
- Gain familiarity with the latest advancements and best practices in geospatial analysis.
- Acquire practical skills in manipulating and analyzing geospatial data using GIS software.
- Learn to process and interpret LiDAR data for various applications, such as urban planning, environmental studies, and more.
- Create and implement advanced geospatial models to solve real-world problems using GIS and LiDAR data.

Course Outlines

Day 1: Introduction to GIS

- Overview of GIS fundamentals and applications: An introduction to geospatial analysis concepts and their applications.
- Understanding spatial data models and coordinate systems: Key principles of geospatial analysis methods and their importance in the GIS environment.
- Introduction to GIS software and tools: Hands-on experience with GIS software used in geospatial data analysis.
- Data acquisition and sources for GIS analysis: Exploring GIS data sources and techniques for data collection.

Day 2: Advanced GIS Analysis Techniques

- Spatial data manipulation and geoprocessing: Advanced geospatial analysis techniques for working with spatial data.
- Spatial analysis methods: Techniques like buffering, overlay analysis, and proximity analysis.
- Raster analysis and modeling: Using GIS tools to perform advanced geospatial modeling.



- Visualization and cartography techniques: Techniques for visualizing geospatial data and creating informative maps.

Day 3: LiDAR Data Processing

- Introduction to LiDAR technology and data characteristics: Understanding the basics of LiDAR data and its significance in geospatial analysis.
- LiDAR data acquisition and preprocessing techniques: Key LiDAR data processing steps and preparation for analysis.
- Point cloud classification and filtering: Techniques for processing LiDAR data point clouds for different applications.
- Digital elevation model DEM generation from LiDAR data: Using LiDAR data to create DEM for terrain analysis.

Day 4: LiDAR Data Analysis and Applications

- LiDAR data visualization and exploration: Visualizing LiDAR data for better interpretation.
- Terrain analysis and feature extraction: Extracting meaningful features from LiDAR data for further analysis.
- LiDAR data fusion with other geospatial datasets: Integrating LiDAR data with other spatial datasets for a more complete analysis.
- LiDAR applications in urban planning, forestry, and environmental studies: Real-world applications of LiDAR data processing.

Day 5: Geospatial Modeling

- Introduction to geospatial modeling concepts: Understanding the basics of geospatial modeling and its applications.
- Model design and parameterization: Designing and implementing advanced geospatial models using GIS data.
- Implementation of advanced geospatial models: Applying geospatial analysis techniques to solve complex spatial problems.
- Model validation and accuracy assessment: Evaluating the effectiveness and accuracy of geospatial models.

Conclusion

The Advanced Geospatial Analysis course is a comprehensive program designed to provide participants with essential skills in GIS, LiDAR data processing, and geospatial modeling. By learning the latest geospatial analysis methods, LiDAR data processing techniques, and best practices, participants will be well-equipped to manage complex geospatial projects. Whether you're working with LiDAR data or advanced geospatial models, this course will enable you to apply your knowledge to solve real-world challenges in spatial analysis, urban planning, environmental studies, and more.



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