GIS Data Integration Training Course

Professional Development Training Course Outline

Category	GIS	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s data-driven world, Geographic Information Systems (GIS) have become indispensable for integrating, analyzing, and visualizing geospatial data to drive smart decision-making. GIS Data Integration Training Course equips professionals with the technical expertise to merge spatial and non-spatial datasets, implement automated workflows, and apply geospatial intelligence for diverse applications such as urban planning, environmental monitoring, and infrastructure development. With the increasing need for real-time data integration and geospatial analytics, mastering GIS is critical to staying competitive in sectors like smart cities, logistics, agriculture, disaster response, and energy.

This course focuses on practical skills in spatial data management, cloud-based GIS, remote sensing integration, and interoperability standards using powerful tools like ArcGIS, QGIS, and Python for geospatial analysis. Through expert-led modules, hands-on exercises, and industry case studies, participants will learn how to streamline data integration, ensure data quality, and enhance decision-making processes across multiple platforms and formats.

Programme Curriculum

GIS Data Integration Training Course

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Course Objectives

1. Understand key concepts of spatial and non-spatial data integration.
2. Apply GIS software (ArcGIS, QGIS) for multi-source data integration.
3. Implement Python scripts for automating GIS data workflows.
4. Utilize remote sensing data in GIS platforms.
5. Integrate cloud-based GIS systems for real-time data access.
6. Analyze data using spatial statistics and geospatial analytics.
7. Apply interoperability standards (OGC, ISO) for data exchange.
8. Design and manage geodatabases for multi-format inputs.
9. Validate and clean geospatial data for accuracy and usability.
10. Merge IoT and sensor data into GIS systems.
11. Develop location intelligence dashboards for decision-making.
12. Conduct advanced spatial analysis for predictive modeling.
13. Use case studies to apply GIS integration in real-world scenarios.

Target Audience

1. Urban Planners
2. Environmental Scientists
3. Data Analysts & Scientists
4. Civil Engineers & Surveyors
5. Government & Policy Professionals
6. Remote Sensing Specialists
7. Infrastructure Project Managers
8. Academics & GIS Educators

Course Duration: 5 days

Course Modules

Module 1: Fundamentals of GIS Data Integration

- Overview of spatial and non-spatial data
- Data sources: satellite, GPS, IoT, census, and surveys
- File types and formats (shapefiles, GeoJSON, KML)
- Coordinate systems and projections
- Introduction to integration tools (ArcGIS, QGIS)
- **Case Study**: Integrating municipal land records for zoning reform

Module 2: Geodatabase Design and Management

- Designing schema for spatial data storage
- Multi-format data import/export
- Managing attribute data and metadata
- Topology rules and validation
- File geodatabases vs enterprise geodatabases
- **Case Study**: Building a land use database for a growing city

Module 3: Remote Sensing and Imagery Integration

- Introduction to raster data and remote sensing basics
- Integrating satellite imagery into GIS
- Image classification and change detection
- Working with LiDAR and UAV data
- Raster-vector overlays and spatial alignment
- **Case Study**: Deforestation analysis using Landsat imagery

Module 4: Python for GIS Automation

- Introduction to Python scripting in GIS
- Automating repetitive GIS tasks
- Parsing and merging data with pandas & geopandas
- ArcPy and PyQGIS tools
- API integration for live data streams
- **Case Study**: Automating road condition reporting system

Module 5: Spatial Analysis and Modeling

- Buffering, overlay, and spatial joins
- Network analysis and route optimization
- Hotspot and cluster analysis
- Predictive modeling with GIS data
- Risk and impact assessments
- **Case Study**: Predicting flood-prone areas in a river basin

Module 6: Cloud GIS and Real-Time Data Integration

- Introduction to cloud-based GIS (ArcGIS Online, Google Earth Engine)
- Publishing web maps and feature layers
- Real-time sensor and IoT data in GIS
- Working with APIs for dynamic updates
- Mobile GIS data collection
- **Case Study**: Monitoring traffic flow using IoT-GIS integration

Module 7: Data Interoperability and Standards

- Understanding OGC, ISO, and INSPIRE standards
- Ensuring compatibility across platforms
- Converting data formats safely
- Managing data transformations
- Implementing metadata and lineage tracking
- **Case Study**: Cross-agency data sharing for disaster response

Module 8: Visualizing Integrated Data for Decision-Making

- Creating dashboards and story maps
- Thematic mapping and symbology
- Interactive web GIS tools
- Best practices in map design
- Visualization for policy-making
- **Case Study**: Real-time COVID-19 response dashboard for urban health monitoring

Training Methodology

- Interactive instructor-led sessions (virtual or in-person)
- Hands-on lab exercises with GIS software

- Real-world project-based learning with datasets
- Group discussions and peer feedback
- Case study analysis and presentations

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com