Training Course on Geospatial Data Curation and Archiving

Professional Development Training Course Outline

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

Course Introduction

In an increasingly **data-driven world**, the sheer volume of **geospatial data** generated daily presents both immense opportunities and significant challenges. From **satellite imagery** and **GIS layers** to **sensor data** and **VGI (Volunteered Geographic Information)**, effectively managing this complex information is critical for accurate **spatial analysis**, informed **decision-making**, and robust **research outcomes**. Training Course on Geospatial Data Curation and Archiving addresses the urgent need for professionals skilled in **geospatial data curation** and **long-term archiving**, ensuring data integrity, accessibility, and reusability across diverse sectors.

This comprehensive training program empowers participants with the **best practices** and **cutting-edge tools** to navigate the entire **geospatial data lifecycle**. We delve into essential concepts such as **metadata standards**, **data quality assurance**, **version control**, and **digital preservation strategies**. Through a blend of theoretical knowledge and **hands-on practical exercises**, attendees will gain the expertise to transform raw, disparate geospatial datasets into reliable, **actionable intelligence**, fostering greater efficiency and impact within their organizations.

Programme Curriculum

Training Course on Geospatial Data Curation and Archiving

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5 days

Course Objectives

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

1. Master the geospatial data lifecycle from acquisition to long-term preservation.
2. Implement robust data governance frameworks for spatial datasets.
3. Apply FAIR principles (Findable, Accessible, Interoperable, Reusable) to geospatial data.
4. Develop comprehensive metadata schemas for diverse geospatial data types (e.g., ISO 19115, FGDC CSDGM).
5. Utilize advanced data quality assurance techniques for vector and raster data.
6. Design and manage secure geospatial data repositories and cloud storage solutions.
7. Employ version control systems effectively for collaborative geospatial projects.
8. Understand legal and ethical considerations in geospatial data sharing and privacy (e.g., GDPR, data sovereignty).
9. Curate and prepare geospatial data for AI/ML applications and Big Data analytics.
10. Implement digital preservation strategies for long-term geospatial data longevity.
11. Leverage open-source and commercial tools for geospatial data management (e.g., QGIS, ArcGIS Pro, PostGIS, Dataverse).
12. Develop strategies for integrating real-time geospatial data streams into archives.
13. Contribute to the creation of Geospatial Digital Twins through effective data curation.

Organizational Benefits

- Ensures **accurate, consistent, and trustworthy geospatial data** for critical operations and analysis.
- Provides stakeholders with **high-quality, readily accessible spatial intelligence** for strategic planning and problem-solving.
- Optimizes storage and management, minimizing duplicate efforts and associated expenses.
- Adheres to **data protection regulations, industry standards**, and **ethical guidelines**, reducing legal and reputational risks.
- Facilitates seamless data exchange across departments and with external partners, fostering innovation.
- Implements **long-term preservation strategies** to protect valuable geospatial investments.
- Streamlines data processing, analysis, and dissemination, leading to greater operational efficiency.
- Equips the organization with **cutting-edge geospatial data management capabilities**, driving innovation and market leadership.

Target Audience

1. GIS Professionals & Analysts.
2. Data Scientists & Researchers.
3. Archivists & Librarians:.
4. Urban Planners & Environmental Scientists.
5. IT Professionals & Database Administrators:.
6. Project Managers:.
7. Government & NGO Staff
8. Anyone involved in the creation, maintenance, or long-term use of geospatial data.

Course Outline

Module 1: Introduction to Geospatial Data & Its Lifecycle

- Understanding diverse geospatial data types
- The critical role of data curation in the **geospatial data lifecycle**.
- Challenges in managing **Big Geospatial Data** and **IoT spatial data**.
- Overview of **spatial data infrastructure (SDI)** concepts.
- Introduction to **FAIR principles** in a geospatial context.
- **Case Study**: Analyzing challenges in managing diverse **satellite imagery** and **drone data** for a national mapping agency.

Module 2: Geospatial Data Quality & Validation

- Defining and measuring **geospatial data quality**
- Techniques for **data cleaning**, error detection, and correction in GIS.
- **Geometric and attribute validation** methods.
- Implementing **data quality control (DQC)** workflows.
- Leveraging **crowdsourced geospatial data** with quality checks.
- **Case Study**: Improving the accuracy of a city's **cadastral database** by identifying and correcting geometric and attribute errors.

Module 3: Metadata Standards & Documentation

- The importance of **rich metadata** for discoverability and reusability.
- Detailed exploration of **ISO 19115/19139** and **FGDC CSDGM** standards.
- Practical application of **metadata creation tools** and best practices.
- Strategies for automating **metadata generation** and validation.
- Integrating **provenance information** into geospatial metadata.
- **Case Study**: Developing a standardized **metadata catalog** for a regional environmental monitoring program to enhance data sharing.

Module 4: Geospatial Data Storage & Management Systems

- Choosing appropriate **geospatial database systems**
- Designing efficient **spatial data schemas** and **indexing strategies**.
- Implementing **cloud-based geospatial storage solutions**
- Strategies for **data versioning** and change tracking.
- Managing **large-scale geospatial archives** effectively.
- **Case Study**: Migrating a legacy **geospatial data repository** to a modern **cloud-based system** with version control for a utility company.

Module 5: Geospatial Digital Preservation Strategies

- Understanding the principles of **digital preservation** for spatial data.
- Identifying **preservation risks** for various geospatial formats.
- Selecting appropriate **archival formats** and migration strategies.
- Implementing **digital object identifiers (DOIs)** and persistent identifiers for geospatial datasets.
- Developing **preservation policies** and long-term access plans.
- **Case Study**: Preserving historical **topographic maps** and associated digital data for a national archive, ensuring future accessibility.

Module 6: Legal, Ethical, and Security Aspects

- Navigating **data licensing**, **copyright**, and **intellectual property rights** for geospatial data.
- Addressing **data privacy** concerns, especially with **personally identifiable information (PII)** in spatial datasets.
- Understanding **data governance** frameworks and **data sovereignty**.
- Implementing **geospatial data security measures** (access control, encryption).
- Compliance with **GDPR** and other relevant data protection regulations.
- **Case Study**: Establishing a secure data sharing protocol for sensitive **health-related geospatial data** while maintaining patient privacy.

Module 7: Advanced Curation Techniques & Emerging Trends

- **Data lineage** and **provenance tracking** for complex geospatial workflows.
- Preparing geospatial data for **machine learning** and **AI models (GeoAI)**.
- Integrating **real-time sensor data** and **streaming geospatial data** into archives.
- Introduction to **geospatial digital twins** and their data requirements.
- Leveraging **blockchain for geospatial data integrity** (overview).
- **Case Study**: Curating **time-series satellite imagery** for climate change modeling, ensuring data consistency and readiness for AI analysis.

Module 8: Building & Sustaining a Geospatial Curation Program

- Developing a **geospatial data management plan (GDMP)**.
- Establishing **data stewardship roles** and responsibilities.
- Implementing continuous **data quality audits** and feedback loops.
- Strategies for **training and capacity building** within an organization.
- Fostering a **culture of data excellence** and **open data practices**.
- **Case Study**: Designing and implementing a new **geospatial data curation program** for a large research institution, including policy development and staff training.

Training Methodology

This course employs a highly interactive and practical training methodology, combining:

- **Instructor-Led Presentations**: Clear, concise explanations of core concepts.
- **Hands-on Software Exercises**: Practical application using industry-standard open-source tools (e.g., QGIS, PostGIS) and demonstrations of commercial software (e.g., ArcGIS Pro, Dataverse).
- **Real-World Case Studies & Discussions**: In-depth analysis of successful and challenging geospatial data curation scenarios.
- **Group Activities & Collaborative Problem-Solving**: Fostering peer learning and practical skill development.
- **Demonstrations & Live Coding Sessions**: Illustrating complex processes and workflows.

- **Q&A Sessions**: Dedicated time for clarification and deeper understanding.
- **Practical Assignments**: Reinforcing learned concepts through applied tasks.

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

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

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

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