Training Course on GIS for Humanitarian Aid and Development

Professional Development Training Course Outline

Category	GIS	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Geographic Information Systems (GIS) are transformative technologies that **revolutionize humanitarian aid and sustainable development**. By integrating, analyzing, and visualizing spatial data, GIS provides critical insights for understanding complex crises, optimizing resource allocation, and fostering resilient communities. Training Course on GIS for Humanitarian Aid and Development equips professionals with **advanced geospatial skills** to tackle pressing global challenges, from disaster response and refugee management to public health interventions and climate adaptation. Leveraging the power of location intelligence, participants will learn to harness data-driven decision-making, ensuring more **effective, efficient, and equitable outcomes** in fragile contexts.

In an increasingly interconnected world facing multifaceted humanitarian emergencies and persistent development disparities, the strategic application of GIS is paramount. This training goes beyond basic mapping, delving into **advanced spatial analysis, remote sensing, and data visualization techniques** crucial for **real-time situational awareness, vulnerability assessments, and impact monitoring**. Graduates will emerge as skilled geospatial practitioners, capable of designing and implementing **innovative GIS solutions** that bridge the gap between data and decisive action, ultimately contributing to more impactful humanitarian operations and sustainable development initiatives worldwide.

Programme Curriculum

Training Course on GIS for Humanitarian Aid and Development

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Course Objectives

1. Develop expertise in **collecting, organizing, validating, and integrating diverse geospatial datasets** from various for humanitarian and development contexts.
2. Conduct sophisticated **spatial analysis techniques** to identify patterns, relationships, and trends in complex humanitarian and development challenges.
3. Leverage **satellite imagery and drone data** for rapid damage assessment, population displacement tracking, infrastructure mapping, and monitoring environmental changes in post-disaster or conflict zones.
4. Implement GIS-based solutions for **early warning and predictive modeling** of natural hazards, disease outbreaks, and food insecurity, enabling proactive humanitarian interventions.
5. Apply GIS for **logistics optimization, resource allocation, emergency shelter planning, and real-time coordination** during humanitarian emergencies.
6. Perform comprehensive **vulnerability mapping and risk assessments** to identify at-risk populations and critical infrastructure, informing targeted interventions.
7. Utilize GIS for **supply chain management, route optimization, and tracking humanitarian aid distribution**, ensuring timely and efficient delivery of assistance.
8. Employ GIS for **disease surveillance, outbreak mapping, health facility accessibility analysis, and public health campaign planning** in underserved areas.
9. Apply GIS for **land use planning, resource management, infrastructure development, and monitoring progress towards Sustainable Development Goals (SDGs)**.
10. Create **dynamic, user-friendly web maps and interactive dashboards** for effective communication of spatial insights to stakeholders, decision-makers, and the public.
11. Design and implement **mobile-based data collection strategies** for real-time field data capture and rapid assessment.
12. Understand and apply **data privacy, data security, and ethical guidelines** in the collection, use, and dissemination of sensitive geospatial data in humanitarian settings.
13. Foster best practices for **geospatial data sharing, interoperability, and collaborative mapping initiatives** among humanitarian organizations and development agencies.

Organizational Benefits

- Data-driven insights lead to more informed and strategic decisions in complex humanitarian and development scenarios.
- Real-time spatial intelligence provides a clearer picture of evolving crises and development needs.
- Efficient deployment of resources, personnel, and aid based on spatial analysis and needs assessment.
- Streamlined workflows for logistics, emergency response, and project management.
- Visualized data enhances reporting and demonstrates the impact of interventions.
- Early identification of vulnerabilities and potential risks, leading to preventative measures.
- Spatially informed program planning, baseline assessments, and impact evaluations.
- Shared geospatial platforms facilitate better coordination among diverse stakeholders.
- Reduced operational costs through optimized planning and resource utilization.
- Empowering local communities with geospatial tools for self-sufficiency and disaster preparedness.

Target Audience

1. Humanitarian Aid Workers
2. Development Practitioners.
3. Government Officials.
4. NGO Professionals.
5. UN Agency Staff.
6. Researchers & Academics.
7. Data Scientists & Analysts.
8. Early Career Professionals

Course Outline

Module 1: Foundations of GIS for Humanitarian & Development

- Introduction to GIS
- Understanding Spatial Data
- GIS Software Overview
- Data Sources for Humanitarian & Development
- Case Study: Mapping basic infrastructure and population density in a refugee camp using publicly available data.

Module 2: Geospatial Data Collection & Management

- Planning for Field Data Collection
- Mobile Data Collection Tools
- GPS & GNSS Fundamentals.
- Data Cleaning & Validation
- Case Study: Designing a mobile survey for post-disaster damage assessment and collecting data in a simulated affected area.

Module 3: Core GIS Operations & Visualization

- Georeferencing & Digitization
- Symbolization & Cartography.
- Querying & Selecting Data

- Layout Design for Maps & Reports
- Case Study: Creating a series of thematic maps illustrating water access points and sanitation facilities in a rural development project area.

Module 4: Spatial Analysis for Needs Assessment

- Proximity Analysis
- Overlay Analysis.
- Buffering & Clipping.
- Density Mapping
- Case Study: Using buffer analysis to determine the number of people living within 5km of a new emergency food distribution point.

Module 5: Remote Sensing for Situational Awareness

- Introduction to Remote Sensing
- Image Interpretation.
- Land Cover Classification
- Change Detection Analysis
- Case Study: Analyzing pre- and post-disaster satellite imagery to assess damage to infrastructure and identify affected areas after a hurricane.

Module 6: GIS for Disaster Risk Reduction (DRR)

- Hazard Mapping
- Vulnerability Assessment.
- Risk Mapping.
- Community-Based Risk Mapping.
- Case Study: Developing a multi-hazard risk map for a specific district, incorporating flood zones, seismic activity, and vulnerable population data.

Module 7: Emergency Response & Humanitarian Logistics

- Real-time Mapping for Response.
- Route Optimization
- Logistics & Supply Chain Management
- Resource Tracking & Allocation
- Case Study: Simulating an emergency response operation, optimizing routes for delivering medical supplies to multiple affected locations.

Module 8: GIS for Public Health & Epidemiology

- Disease Mapping & Surveillance
- Health Facility Mapping & Accessibility.
- Environmental Health Mapping.
- Targeting Health Interventions
- Case Study: Mapping cholera outbreak locations in a community and identifying potential contamination sources using spatial clustering.

Module 9: GIS for Sustainable Development Goals

- Mapping SDG Indicators
- Spatial Analysis for Development Planning.
- Monitoring Environmental Sustainability.

- Assessing Access to Basic Services
- Case Study: Using GIS to assess the spatial distribution of access to clean water and sanitation facilities, highlighting areas needing intervention for SDG 6.

Module 10: Advanced GIS Techniques & Tools

- Geoprocessing with Python Scripting
- Introduction to Spatial Databases
- Network Analysis.
- Terrain Analysis.
- Case Study: Developing a Python script to automate the calculation of total population within specific administrative boundaries.

Module 11: Web GIS & Interactive Mapping

- Introduction to Web GIS
- Creating Interactive Web Maps.
- Developing GIS Dashboards
- Story Maps & Geospatial Storytelling.
- Case Study: Building an interactive web map dashboard to visualize real-time flood alerts and affected populations for public dissemination.

Module 12: Data Visualization & Communication

- Principles of Effective Cartographic Design
- Infographics & Data Storytelling.
- Communicating Spatial Analysis Results
- Ethical Data Visualization
- Case Study: Creating a compelling infographic that illustrates the impact of a development project on a local community using a combination of maps and statistical charts.

Module 13: Ethical Considerations & Data Governance

- Data Privacy & Confidentiality
- Data Security & Storage.
- Ethical Use of GIS in Conflict Zones
- Data Sharing Protocols & Agreements
- Case Study: Discussing ethical dilemmas related to mapping vulnerable populations in a conflict zone and developing strategies for responsible data handling.

Module 14: Project Design & Implementation with GIS

- GIS Project Planning & Management.
- Needs Assessment for GIS Implementation
- GIS Team Building & Training.
- Monitoring & Evaluation of GIS Projects.
- Case Study: Designing a comprehensive GIS project plan for a new food security program, outlining data requirements, analysis steps, and expected outputs.

Module 15: Emerging Trends & Future of GIS in Aid

- Artificial Intelligence (AI) & Machine Learning (ML) in GIS.
- Big Data & Geospatial Analytics
- Real-time GIS & IoT Integration

- Crowdsourcing & Citizen Science
- Case Study: Exploring the potential of AI-driven image recognition to identify damaged buildings from satellite imagery in a rapid disaster response scenario.

Training Methodology

- **Interactive Lectures & Discussions:** Concise presentations of core concepts, followed by open discussions to foster understanding and critical thinking.
- **Hands-on Software Training:** Step-by-step practical exercises using open-source GIS software (primarily QGIS) to build proficiency in various tools and techniques.
- **Real-World Case Studies:** Analysis of successful GIS applications in humanitarian and development projects, providing context and practical insights.
- **Group Work & Collaborative Projects:** Participants will work in teams on practical assignments, simulating real-world scenarios and promoting peer learning.
- **Problem-Based Learning:** Challenging participants with practical problems that require the application of GIS skills to find solutions.
- **Expert Demonstrations:** Live demonstrations of advanced GIS techniques and workflows by experienced practitioners.
- **Q&A Sessions & Troubleshooting:** Dedicated time for participants to ask questions and receive support on technical challenges.
- **Continuous Assessment & Feedback:** Regular opportunities for participants to apply their learning and receive constructive feedback.

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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