Remote Sensing for Environmental M&E Training Course

Professional Development Training Course Outline

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

Course Introduction

Remote Sensing for Environmental M&E Training Course is designed to equip professionals with the skills to leverage satellite imagery, drones, and geospatial technologies for tracking environmental changes, assessing project impacts, and making data-driven decisions. This course emphasizes the integration of remote sensing data with environmental M&E frameworks, enabling participants to monitor ecosystems, detect deforestation, track water resources, and evaluate climate resilience projects effectively. Participants will gain hands-on experience with cutting-edge tools such as GIS software, multispectral and hyperspectral imagery, and Earth observation platforms.

With environmental sustainability becoming a global priority, the demand for remote sensing expertise is rising across government agencies, NGOs, research institutions, and private sector environmental consultancies. This course blends theory, practical exercises, and case studies to develop participants' technical proficiency, analytical skills, and strategic decision-making capabilities. By the end of the course, participants will be empowered to use remote sensing for real-world environmental M&E, enhancing accountability, sustainability, and impact measurement across projects.

Programme Curriculum

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Course Objectives

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

1. Understand the fundamentals of remote sensing technologies for environmental M&E.
2. Apply GIS and geospatial analysis techniques to monitor environmental changes.
3. Interpret satellite imagery and aerial data for project evaluation.
4. Design M&E frameworks integrating remote sensing data.
5. Assess land use and land cover dynamics using high-resolution imagery.
6. Monitor water quality, hydrology, and aquatic ecosystems remotely.
7. Detect deforestation, habitat loss, and biodiversity changes using remote sensing.
8. Analyze climate change impacts and resilience strategies with geospatial data.
9. Develop early warning systems for environmental hazards.
10. Implement drone-based environmental monitoring solutions.
11. Integrate remote sensing with participatory M&E approaches.
12. Utilize cloud-based platforms for large-scale environmental data processing.
13. Generate actionable reports and visual dashboards for environmental decision-making.

Target Audience

- Environmental M&E professionals
- GIS and Remote Sensing analysts
- Climate change and sustainability consultants
- NGO program officers in environmental projects
- Government environmental agencies staff
- Research scientists and academics in ecology and conservation
- Water resource and forestry managers
- Data-driven project evaluators

Course Modules

Module 1: Introduction to Remote Sensing for Environmental M&E

- Principles of remote sensing and its environmental applications
- Overview of satellite imagery types and sensors
- Remote sensing workflow for M&E
- Key environmental monitoring indicators

- Case Study: Deforestation monitoring in the Amazon

Module 2: Geospatial Data Fundamentals

- Introduction to GIS and geospatial analysis
- Spatial data types: vector vs raster
- Coordinate systems and projections
- Environmental data sources and repositories
- Case Study: Land cover mapping using Sentinel-2 imagery

Module 3: Satellite Imagery Acquisition

- Understanding satellite platforms
- Free vs commercial satellite data
- Temporal and spatial resolution considerations
- Image acquisition protocols
- Case Study: Monitoring urban expansion in Nairobi

Module 4: Image Preprocessing and Enhancement

- Radiometric and geometric corrections
- Image filtering and enhancement techniques
- Cloud masking and atmospheric corrections
- Preparing datasets for analysis
- Case Study: Enhancing imagery for wetland monitoring

Module 5: Land Use and Land Cover Analysis

- Classification methods
- Accuracy assessment and validation
- Detecting changes over time
- Integrating field data for validation
- Case Study: Land cover change in Kenya’s Rift Valley

Module 6: Vegetation and Forest Monitoring

- NDVI and other vegetation indices
- Forest cover change detection
- Biomass and carbon stock estimation
- Threat detection (logging, fire, pests)
- Case Study: Forest degradation assessment in Mount Kenya

Module 7: Water Resources and Aquatic Ecosystems

- Monitoring water quality with remote sensing
- Hydrological mapping and river basin monitoring
- Wetland dynamics analysis
- Algae bloom detection
- Case Study: Lake Naivasha water quality assessment

Module 8: Climate Change and Resilience Analysis

- Monitoring climate variables remotely

- Assessing vulnerability and adaptive capacity
- Temperature and precipitation trend mapping
- Integration with climate M&E frameworks
- Case Study: Coastal erosion monitoring in Lamu

Module 9: Disaster and Hazard Monitoring

- Early warning systems for floods, droughts, and landslides
- Remote sensing for risk assessment
- Post-disaster impact mapping
- Geospatial data for emergency response
- Case Study: Flood monitoring in Western Kenya

Module 10: Drone-Based Environmental Monitoring

- Introduction to UAVs for environmental data collection
- Flight planning and safety regulations
- Image capture and orthomosaic generation
- Applications in forestry, agriculture, and wildlife
- Case Study: Wildlife habitat mapping in Maasai Mara

Module 11: Participatory Remote Sensing M&E

- Combining citizen science with remote sensing data
- Community mapping and validation
- Participatory monitoring tools
- Collaborative data platforms
- Case Study: Community forest monitoring in Kakamega

Module 12: Cloud Computing and Big Data for Environmental M&E

- Introduction to Google Earth Engine
- Handling large environmental datasets
- Automated change detection and monitoring
- Integration with machine learning
- Case Study: Large-scale land degradation analysis

Module 13: Data Analysis and Interpretation

- Statistical and spatial analysis techniques
- Trend detection and anomaly identification
- Visualizing geospatial data for stakeholders
- Reporting insights for M&E
- Case Study: Urban heat island analysis in Nairobi

Module 14: Environmental Reporting and Dashboards

- Dashboard creation using GIS and BI tools
- Communicating results effectively
- Designing interactive environmental dashboards
- Best practices for environmental reporting
- Case Study: Environmental dashboard for Kenya’s water sector

Module 15: Capstone Project

- End-to-end environmental monitoring project
- Data collection, processing, and analysis
- Integration with M&E frameworks
- Presentation and stakeholder engagement
- Case Study: Monitoring biodiversity hotspots using multi-source data

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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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