Earth Observation Data Analysis for SDGs Training Course

Professional Development Training Course Outline

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

Course Introduction

In an increasingly data-driven world, Earth Observation (EO) data is transforming how we understand and solve global challenges. Earth Observation Data Analysis for SDGs Training Course empowers professionals, researchers, and decision-makers with practical skills to harness satellite imagery, geospatial analytics, and remote sensing technologies for sustainable impact. With the accelerating demand for data-informed policy and evidence-based decision-making, EO data has become crucial in addressing issues such as climate change, food security, disaster response, urban development, and environmental conservation.

This course is designed to bridge the gap between raw EO data and actionable insights aligned with the United Nations Sustainable Development Goals. Participants will gain hands-on experience in using platforms like Google Earth Engine, QGIS, and Python, integrating EO data into national reporting systems and monitoring frameworks. Whether you are working in government, academia, private sector, or non-profit sectors, this course will equip you to apply EO data analytics effectively to drive measurable progress toward the SDGs.

Programme Curriculum

Earth Observation Data Analysis for SDGs Training Course

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Course Objectives

1. Understand the fundamentals of remote sensing and EO data sources.
2. Analyze satellite imagery for environmental monitoring.
3. Apply geospatial tools in SDG-related decision-making.
4. Integrate EO data into national SDG reporting frameworks.
5. Utilize Google Earth Engine for EO data analysis.
6. Process and interpret multi-temporal EO datasets.
7. Apply machine learning for land use/land cover classification.
8. Leverage EO data for climate change impact analysis.
9. Conduct spatial-temporal analysis for disaster risk reduction.
10. Use EO tools in urban development and planning.
11. Map agricultural productivity and food security indicators.
12. Develop data dashboards and visualizations using EO outputs.
13. Promote data-driven policy formulation through EO insights.

Target Audiences

1. Environmental scientists and researchers
2. Government SDG officers and policy advisors
3. GIS and EO specialists
4. Data analysts and machine learning professionals
5. Urban planners and local authorities
6. Disaster management practitioners
7. NGOs and development organizations
8. Graduate students and educators

Course Duration: 10 days

Course Modules

Module 1: Introduction to EO and SDGs

- Overview of Earth Observation and SDG frameworks
- Key EO platforms and sensors
- EO data types and access
- Relevance of EO to Agenda 2030
- Global initiatives using EO for SDGs
- **Case Study**: EO4SD initiative by ESA

Module 2: Remote Sensing Basics

- Electromagnetic spectrum and sensors
- Image acquisition and resolution
- Data formats and metadata
- Pre-processing techniques
- Tools for viewing EO data
- **Case Study**: Landsat for water monitoring in Kenya

Module 3: Google Earth Engine for SDGs

- Introduction to GEE interface
- GEE JavaScript & Python APIs
- Loading and filtering datasets
- Running spatial analysis
- Visualizing and exporting results
- **Case Study**: NDVI monitoring for agricultural SDGs

Module 4: QGIS for Geospatial Analysis

- Basics of QGIS interface
- Vector and raster data handling
- Geoprocessing tools
- Layer styling and symbology
- Exporting maps and reports
- **Case Study**: Urban expansion in Lagos using QGIS

Module 5: Data Integration and Interoperability

- Combining EO data with census/GIS data
- Using APIs and cloud storage
- Open data platforms (e.g., Copernicus, NASA)
- Metadata standards (e.g., ISO, INSPIRE)
- Interpreting multi-source datasets
- **Case Study**: Integrating EO & socio-economic data for SDG 11

Module 6: Land Use and Land Cover (LULC) Mapping

- Classification algorithms overview
- Supervised vs unsupervised classification
- Accuracy assessment
- LULC change detection
- Mapping ecosystem services
- **Case Study**: Forest loss mapping in the Amazon Basin

Module 7: EO for Climate Action (SDG 13)

- Monitoring climate variables via EO
- Climate model calibration with EO data
- Detecting anomalies and trends
- Early warning systems
- Linking EO to carbon accounting
- **Case Study**: Drought monitoring in the Horn of Africa

Module 8: EO in Agriculture and Food Security (SDG 2)

- Crop classification with EO
- Seasonal productivity estimation
- Water stress detection
- Pest/disease monitoring
- Yield prediction models
- **Case Study**: EO for food security in India

Module 9: EO in Urban Planning (SDG 11)

- Urban sprawl detection

- Green space monitoring
- Heat island mapping
- Infrastructure planning using EO
- Smart city planning with EO tools
- **Case Study**: EO-driven urban analysis in Cairo

Module 10: EO for Water and Sanitation (SDG 6)

- Monitoring water quality and extent
- EO for watershed management
- Identifying informal settlements
- Mapping sanitation service coverage
- Linking EO with hydrological models
- **Case Study**: EO for clean water tracking in Rwanda

Module 11: EO for Disaster Risk Reduction (SDG 13)

- Flood mapping and alerts
- Landslide susceptibility analysis
- EO in humanitarian response
- Multi-hazard risk assessment
- Satellite imagery for rapid assessment
- **Case Study**: Cyclone damage mapping in Southeast Asia

Module 12: Machine Learning in EO Data

- Introduction to ML models for EO
- Training datasets and feature selection
- Deep learning for image segmentation
- Model validation techniques
- ML integration with GEE
- **Case Study**: AI-based land cover classification in Ethiopia

Module 13: EO Data Visualization and Dashboards

- Tools for interactive dashboards (Power BI, Tableau)
- Time-series charting
- Map visualizations and infographics
- Story maps and narrative building
- Embedding EO analytics in reports
- **Case Study**: SDG dashboard for small island states

Module 14: EO for Environmental Monitoring

- Tracking biodiversity and ecosystems
- EO for pollution detection
- Monitoring protected areas
- Illegal activity detection (logging, fishing)
- Reporting progress on SDG 15
- **Case Study**: EO in deforestation alert systems

Module 15: Policy, Ethics, and SDG Reporting

- Linking EO data with policy frameworks
- Data governance and privacy
- Ethical use of satellite imagery

- Communicating EO insights to policymakers
- Integrating EO in Voluntary National Reviews (VNRs)
- **Case Study**: EO-supported SDG reporting in Ghana

Training Methodology

- Hands-on practical sessions with real EO datasets
- Step-by-step exercises on Google Earth Engine and QGIS
- Expert-led video tutorials and live webinars
- Peer-reviewed assignments and group collaboration
- Case-based learning to connect theory with real-world impact
- Ongoing access to curated EO datasets and tools

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

Start Date	End Date	Location	Price
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

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

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