Remote Sensing Data Processing with Google Earth Engine Training Course

Professional Development Training Course Outline

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

Course Introduction

In the age of climate change, environmental degradation, and big data, remote sensing technology has become an indispensable tool for environmental monitoring, land use mapping, and disaster management. Remote Sensing Data Processing with Google Earth Engine Training Course is designed to equip researchers, analysts, students, and professionals with hands-on skills in using Google Earth Engine (GEE) for satellite data analysis, visualization, and processing. Leveraging GEE's powerful cloud-based platform, participants will learn to process large-scale geospatial datasets without the need for high-end infrastructure.

This course blends machine learning for Earth observation, cloud computing for remote sensing, and geospatial data analytics using JavaScript and Python APIs. Participants will gain real-world experience through case studies on deforestation, climate monitoring, agriculture, and urban development. By the end of the course, learners will be proficient in building, executing, and automating workflows using GEE, and applying them in diverse sectors including agriculture, water resources, disaster risk management, and sustainability science.

Programme Curriculum

Remote Sensing Data Processing with Google Earth Engine Training Course

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Course Objectives

Participants will be able to:

1. Understand the fundamentals of remote sensing and Earth observation data.
2. Navigate and operate Google Earth Engine's code editor and platform.
3. Apply geospatial machine learning algorithms using GEE.
4. Conduct change detection and land cover classification.
5. Perform NDVI and other vegetation indices analysis.
6. Integrate Python and JavaScript APIs with Google Earth Engine.
7. Process multi-temporal satellite imagery using GEE.
8. Visualize and export geospatial datasets and outputs.
9. Analyze climatic trends using MODIS and Landsat data.
10. Automate data processing tasks using Earth Engine apps.
11. Evaluate case studies in disaster mapping and water monitoring.
12. Conduct urban heat island and LULC analysis.
13. Develop reproducible workflows and share geospatial applications.

Target Audience

1. Environmental Scientists and Ecologists
2. GIS and Remote Sensing Specialists
3. Disaster Risk Reduction Professionals
4. Data Scientists and Analysts
5. Researchers and Academic Scholars
6. Climate Change Analysts
7. Urban Planners and Geographers
8. Students and Educators in Earth Sciences

Course Duration: 5 days

Course Modules

Module 1: Introduction to Remote Sensing and GEE

- Overview of Earth observation data types
- Principles of remote sensing and satellites (MODIS, Landsat, Sentinel)
- Navigating the GEE Code Editor interface
- Data catalog exploration and filtering
- Writing your first script in GEE (JavaScript)
- **Case Study:** Mapping global forest cover trends

Module 2: Image Preprocessing and Compositing

- Cloud masking and atmospheric correction
- Temporal filtering and mosaicking
- Image compositing techniques
- Visualization enhancements and stretch
- Exporting processed imagery

- **Case Study:** Seasonal land surface temperature monitoring

Module 3: Spectral Indices and Vegetation Analysis

- Understanding NDVI, EVI, SAVI, and NDWI
- Calculating indices using GEE expressions
- Time series trend analysis
- Detecting vegetation health and changes
- Visualizing vegetation indices on maps
- **Case Study:** Drought monitoring in sub-Saharan Africa

Module 4: Land Cover Classification and Change Detection

- Supervised and unsupervised classification
- Random forest and CART classifiers
- Accuracy assessment and confusion matrix
- Change detection techniques
- Reclassification and masking
- **Case Study:** Urban sprawl mapping in Nairobi, Kenya

Module 5: Climate and Hydrological Applications

- Accessing CHIRPS, ERA5, and MODIS climate data
- Analyzing rainfall and temperature trends
- Hydrological modeling using terrain data
- Basin delineation and watershed mapping
- Seasonal analysis of water bodies
- **Case Study:** Flood extent mapping in Bangladesh

Module 6: Urban Analysis and Heat Mapping

- Nighttime light analysis with VIIRS
- Urban land use and land cover (LULC) detection
- Urban heat island effect using thermal imagery
- Built-up area classification
- Zonal statistics in urban planning
- **Case Study:** Heat vulnerability mapping in Phoenix, Arizona

Module 7: Integrating Python and JavaScript APIs in GEE

- Setting up Python API environment
- Running GEE scripts in Jupyter Notebook
- Comparing Python and JavaScript syntax
- Building interactive maps and dashboards
- Batch processing and automation
- **Case Study:** Automated NDVI change detection pipeline

Module 8: Building Earth Engine Apps and Sharing Results

- Earth Engine app development fundamentals
- UI widgets and user interaction
- Hosting and publishing your application
- Collaborating and version control
- Sharing outputs with stakeholders
- **Case Study:** Developing a drought monitoring web app

Training Methodology

- Instructor-led live sessions
- Hands-on coding exercises using real datasets
- Interactive Q&A and troubleshooting
- Downloadable practice scripts and data
- Real-world case studies to reinforce skills
- Certificate upon successful course completion

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

Start Date	End Date	Location	Price
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:

Register Online Now

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