Enhancement Centre
Consultancy | Training | Event
in ICT & Telecommunication

Google Earth Engine

TRAINING COURSE CONTENT

Course Description

This **Google Earth Engine (GEE) course** aims to equip students with comprehensive skills in remote sensing and geospatial analysis. Students will start by understanding the fundamentals of remote sensing and receiving an introduction to GEE. They will learn to work with image and feature collections, perform filtering, create mosaics, clip images, and export data. Intermediate skills will cover Earth Engine objects, calculating indices, cloud masking, using reducers and creating time-series charts.
The course will also introduce machine learning for supervised classification, including accuracy assessment and area calculations. Students will explore change detection techniques and develop the ability to build and publish Earth Engine apps. Additionally, the course will cover the GEE Python API for automating tasks and the integration of GEE with QGIS for enhanced geospatial analysis.

Course Outline:

Day 1:

Introduction:

- Introduction to Remote Sensing
- Introduction to Google Earth Engine

Earth Engine Basics:

- Working with Image Collections
- Filtering Image Collections
- Creating Mosaics and Composites from Image Collections
- Working with Feature Collections
- Importing Data
- Clipping Images
- Exporting Data

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Day 2: Earth Engine Intermediate

- Earth Engine Objects
- Calculating Indices
- Computation on Image Collections
- Cloud Masking
- Reducers
- Time-Series Charts

Day 3: Supervised Classification:

Introduction to Machine Learning and Supervised Classification

- Basic Supervised Classification
- Accuracy Assessment
- Improving the Classification
- Exporting Classification Results
- Calculating Area

Change Detection:

- Introduction to Change Detection
- Spectral Index Change
- Spectral Distance Change
- Direct Classification of Change
- Post-classification Comparison

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Day 4: Earth Engine Apps

- Client vs. Server
- Using UI Elements
- Building and Publishing an App
- Publishing the App
- Create a Split Panel App

Day 5: Google Earth Engine Python API :

- Introduction to the Python API
- Python API Syntax
- Automatic Conversion of Javascript Code to Python
- Batch Export

Day 6:

Using Earth Engine with XArray

Automating Downloads

Automating Exports

Using the Google Earth Engine QGIS Plugin