

# Essential Training Workshop of LULC using Google Earth Engine (GEE)

14-16 May 2023  
Baghdad, Iraq

## Introduction:

The Essential Training Workshop on Land Use and Land Cover (LULC) using Google Earth Engine (GEE) is a training program that aims to equip participants with the necessary skills and knowledge to use Google Earth Engine for remote sensing and geospatial analysis.

The workshop covers various topics such as image processing, data analysis, and mapping of land use and land cover using Google Earth Engine. It includes both theoretical and practical sessions, with hands-on exercises to help participants develop their skills and gain confidence in using GEE.

The training course is suitable for professionals working in the fields of remote sensing, environmental management, natural resources, and geospatial analysis. Participants are expected to have a basic understanding of remote sensing and GIS concepts.

At the end of the workshop, participants will have learned how to:

- Process and analyze satellite imagery using Google Earth Engine
- Generate land use and land cover maps
- Conduct change detection analysis
- Perform time-series analysis on remote sensing data
- Integrate GEE with other software and tools for data analysis and visualization

The training course is conducted by experienced professionals in the field of remote sensing and geospatial analysis, who will provide guidance and support throughout the program.

## Participants and Pre-requisites:

- All participants should have at least basic knowledge on programming (preferable: JavaScript or Python), GIS and RS.
- All participants should create Google earth engine account in prior of training course.
- The technical participants are required to complete training course content.
- The training will consist of several hands-on exercises.
- It is necessary to have your own laptop with preferably Windows 7/10.
- Software Required: QGIS or ArcMap.

## Training Course Content

<b>Day 1: Introduction</b>
- Introduction to LULC
- Introduction to GEE
- Introduction to GEE user interface
- Introduction on Supervised and Unsupervised Classifications
- Import and create shape-file
- Import satellite images: Landsat, Sentinel, DEM
- Filtering satellite imagery: Landsat, Sentinel, DEM
<b>Day 2: Creating custom scripts with JavaScript</b>
- Introduction to the GEE JavaScript
- Defined the used bands
- Clip the satellite image
- Create geometries
- Visualization
- Taking traing points and areas
<b>Day 3: Generating LULC map</b>
- Classifying (Merging data, creating classifier)
- Exporting
- Integration of GEE with other software/tools
- Accuracy assessment

## Agenda (14-16 May 2023, Baghdad)

### Day-1 (14 May 2023): Introduction

Time	Subject	Tutor
08:30- 08:45	Registration	
08:45- 09:20	Introduction to LULC	Dr.Heman Gaznayee
09:20- 09:30	Introduction to GEE	Mr.Kawa Hakzi
09:30 - 10:30	Introduction to GEE user interface	Mr.Kawa Hakzi
10:30 - 10:45	Coffee Break	
10:45 - 11:30	Introduction on Supervised and Unsupervised Classifications	Dr.Hawar Razvanchy
11:30 - 13:00	- Import shape files - Import satellite images - Filtering satellite imagery: Landsat, Sentinel, DEM	Mr.Kawa Hakzi Dr.Hawar Razvanchy
13:00 - 13:30	Q & A	

### Day-2 (15 May 2023): Creating custom scripts with JavaScript

Time	Subject	Tutor
08:30- 08:45	Registration	
08:45 - 09:15	Introduction to the GEE JavaScript	Mr.Kawa Hakzi
09:15 - 09:45	Defined the used bands	Mr.Kawa Hakzi
09:45 - 10:30	Clip the satellite image	Mr.Kawa Hakzi
10:30 - 10:45	Coffee Break	
10:45 - 11:15	Clip the satellite image	Dr.Hawar Razvanchy
11:15 -11:45	Create geometries	Dr.Hawar Razvanchy
11:45 - 12:15	Visualization	Dr.Hawar Razvanchy
12:15-13:00	Taking training points and areas	Dr.Hawar Razvanchy
13:00 -13:30	Q & A	

### Day-3 (16 May 2023): Generating LULC map

Time	Subject	Tutor
08:30- 08:45	Registration	
08:45 - 10:00	Classifying (Merging data, creating classifier)	Dr.Hawar Razvanchy
10:00 - 10:45	Exporting	Dr.Hawar Razvanchy
10:45 - 11:00	Coffee Break	
11:00 - 11:45	Integration of GEE with other software/tools	Dr.Heman Gaznayee
11:45 - 12:30	Accuracy assessment	Mr.Kawa Hakzi
12:30 - 13:00	Closing	Dr.Heman Gaznayee
13:00 - 13:30	Q & A	

#### Trainers:

1. Mr.Kawa Hakzi, Land and water management; Lecturer in College of Agriculture Engineering Sciences, Salahaddin University. specialist. ([Email:kha003@un-ihe.org](mailto:kha003@un-ihe.org); [kawahakzy@gmail.com](mailto:kawahakzy@gmail.com))
2. Dr.Hawar Razvanchy, Soil survey and classification (Penologist)Lecturer in College of Agriculture Engineering Sciences, Salahaddin University;(Email: [hawar.sadiq@su.edu.krd](mailto:hawar.sadiq@su.edu.krd))
3. Dr. Heman Abdulkhaleq Ahmed; Lecturer in College of Agriculture Engineering Sciences, Salahaddin University. General Specialization: Plant production, Specific Specialization: Application of GIS and Remote Sensing in Drought (Email: [heman.ahmed@su.edu.krd](mailto:heman.ahmed@su.edu.krd); [info@culti-vision.com](mailto:info@culti-vision.com)).