BIM MANTRA
BEGIN WITH BIM

PROFESSIONAL CERTIFICATION PROGRAM

ADVANCED GIS WITH POINT CLOUD TECHNOLOGY

with **WebODM · CloudCompare · Potree · QSWAT+ · GitHub**
From desktop GIS and satellite remote sensing to drone photogrammetry, LiDAR processing and live 3D web deployment.

70 Days	Online & Offline	₹30,000
DURATION	MODE	PROGRAM FEE
		EMI options available

- 34 Modules
- 2 Capstone Projects
- ISO Certification
- Placement Assistance
- 100% Open-Source Stack

SECTION 01

GIS with QGIS

17 modules — georeferencing, digitization, symbology, geoprocessing, map production

SECTION 02

Remote Sensing

12 modules — bands, indices, DEM terrain analysis, land-cover classification

SECTION 03

Point Cloud & Web Deployment

5 modules — WebODM, CloudCompare, Potree, GitHub Pages, QSWAT+

BIMMANTRA ACADEMY

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WHY THIS PROGRAM

Most GIS courses stop at making maps. This one doesn't.

You begin with QGIS fundamentals — georeferencing, digitization, symbology and geoprocessing — then move into satellite remote sensing, and finish where the industry is actually hiring: drone photogrammetry, LiDAR point cloud processing, browser-based 3D visualization and hydrological modelling.

Every concept is taught hands-on with real datasets. You leave with two portfolio projects — one of them hosted live on the internet under your own GitHub link.

WHAT YOU'LL MASTER

QGIS
Complete desktop GIS workflow, start to finish

Google Earth Pro
Field mapping, KML/KMZ, image overlays

Remote Sensing
Landsat, Sentinel, MODIS, bands, NDVI

WebODM
Drone imagery to orthophoto, DSM, DTM, point cloud

CloudCompare
LiDAR cleaning, classification, registration

Potree
Browser-based 3D point cloud viewers

QSWAT+
Watershed delineation and SWAT+ simulation

Git & GitHub
Version control and free live hosting

Map Production
Print-ready layouts, legends, scale bars, grids

Who should join

- Civil, Environmental & **Geoinformatics** students and graduates
- **Surveyors and drone pilots** who want to process their own data
- **Architects and BIM professionals** expanding into geospatial
- **GIS analysts** moving from 2D mapping into 3D and point clouds
- **Urban planners, hydrologists** and forestry professionals

No prior GIS experience required. Basic computer literacy is enough.

What you get

- **70 days** of structured, instructor-led training
- **Online and offline** batch options
- **100% open-source** software stack — zero licensing cost, ever
- **Real project data:** toposheets, satellite imagery, drone imagery, LiDAR point clouds, DEMs
- **2 capstone projects** for your portfolio
- A **live, shareable 3D web project** on your own GitHub link
- **ISO-certified** course completion certificate
- **CV preparation** and direct connections to hiring firms

SECTION 01 — 17 MODULES

GIS with QGIS

The complete desktop GIS foundation — from opening the software for the first time to producing print-ready analytical maps.

01 INTRODUCTION TO GIS
QGIS software interface · Coordinate systems · Applications of GIS

02 GEOREFERENCING
Georeferencing the toposheet · Adding control points · Transformations · Adjusting and checking accuracy

03 INTRODUCTION TO GOOGLE EARTH PRO
Interface overview · Placemarks (point features) · Paths (line features) · Creating polygons · Measurement tools · Importing GIS data (shapefiles, CSV) · Image overlays · Exporting KML files

04 CREATE / MODIFY SHAPEFILE
Creating shapefiles · Editing shapefiles · Saving and exporting

05 CREATE / MODIFY GEOPACKAGE
Creating a GeoPackage · Adding datasets · Editing a GeoPackage

06 DIGITIZATION
Point, line and polygon layers · Vector file creation and data collection · Advanced digitization · Snapping tools

07 LABELLING
Labelling features · Advanced labelling techniques

08 SYMBOLOGY
Basic symbology · Classified symbology · Proportional and graduated symbols

09 WORKING WITH THE ATTRIBUTE TABLE
Attribute table creation · Editing attributes · Table joins · Data types

10 FIELD CALCULATOR
Automatic field update · Field data handling · Multiple field calculation

11 GEOMETRIC CALCULATOR
Calculating areas and lengths

12 QUERYING
Attribute queries · Spatial queries

13 GEOPROCESSING
Clip · Buffer · Union · Dissolve

14 MAP LAYOUT AND PRINTING
Print layout composer · Scale bar, north arrow and legend · Grids and graticules · Exporting print-ready PDF and image maps

15 PLUGINS
HTML map export · Latitude/Longitude plugin · 3D Map View · HCMGIS · SRTM Downloader · Multipart tools · Hydrology plugin · KML/KMZ import

16 IMPORTING DIFFERENT FILE FORMATS
Working with CAD, CSV, KML, GeoTIFF, GeoJSON and more in QGIS

17 ADVANCED VISUALIZATION
Point cloud data visualization · DEM cross-section

By the end of Section 1 you can

Take a scanned toposheet, georeference it to a known coordinate system, digitize every feature into a clean shapefile or GeoPackage, build and edit its attribute table, run attribute and spatial queries plus geoprocessing on it, and export a fully symbolised, print-ready map with legend, scale bar and grid — unaided.

SECTION 02 — 12 MODULES

Remote Sensing

From raw satellite imagery to actionable analysis — bands, indices, terrain and land-cover classification.

01 **WHAT IS REMOTE SENSING?**

Definition · Real-world applications

02 **SATELLITES AND THEIR APPLICATIONS**

Landsat · Sentinel · MODIS

03 **REMOTE SENSING SENSORS**

Active sensors · Passive sensors

04 **EM SPECTRUM AND BANDS**

Electromagnetic spectrum overview · What are bands? · Role of different bands · Visible bands · Infrared bands · Microwave bands

05 **BAND COMBINATIONS**

True colour composite · False colour composite · Infrared vegetation analysis · Urban analysis · Land / water separation

06 **COMPOSITE BANDS**

Stacking individual bands into a single multi-band raster · Building custom composites for analysis

07 **INTRODUCTION TO USGS EARTH EXPLORER**

Finding your Region of Interest · Filtering dataset types · Downloading DEM and Landsat data

08 **WORKING WITH SATELLITE DATA**

Loading and stacking satellite scenes · Clipping to study area · Understanding metadata · Preparing imagery for analysis

09 **SURFACE ANALYSIS FROM DEM**

Slope · Aspect · Hillshade · Contour generation

10 **HYDROLOGICAL ANALYSIS**

Stream creation · Catchment creation · Defining the outlet

11 **VEGETATION AND WATER INDICES**

NDVI · NDWI · SAVI

12 **CLASSIFICATION TECHNIQUES**

Supervised classification · Unsupervised classification · Post-classification refinement · Algorithm-based grouping (K-means)

SECTION 03 — 5 MODULES

Point Cloud & Web Deployment

Drone photogrammetry, LiDAR processing, browser-based 3D visualization and hydrological modelling — the advanced stack.

01

WEBODM FOR POINT CLOUD GENERATION

Installing WebODM · WebODM interface overview · Creating and exporting orthophoto · Generating and exporting Digital Surface Model (DSM) · Generating and exporting Digital Terrain Model (DTM) · Generating and exporting point cloud · Mesh and textured model generation · Processing options and quality settings

02

CLOUDCOMPARE FOR LIDAR DATA PROCESSING

CloudCompare interface · Point cloud cleaning · Classification and filtering · Point cloud analysis · Registration and alignment · Exporting and integration

03

POTREE POINT CLOUD VIEWER

Introduction to web-based point cloud visualization · Installing Potree · Converting point cloud data · Potree viewer basics · Advanced Potree features

04

VS CODE AND HOSTING ON GITHUB

Introduction to Git and GitHub · Git installation and setup · Basic Git commands · Working with repositories · GitHub Pages hosting · Deployment examples

05

QSWAT+ FOR HYDROLOGICAL MODELLING

Introduction to hydrology · Installing QSWAT+ · Input data preparation · Watershed delineation · HRU generation · Weather data integration · Running SWAT+ · Output analysis

CAPSTONE PROJECTS

Two projects that put the full stack to work.

01 CAPSTONE ONE

Drone Survey to Web Viewer

Process real drone imagery in WebODM, export the point cloud, and host it live on Potree via GitHub Pages.

02 CAPSTONE TWO

Watershed Hydrological Model

Run a full QSWAT+ watershed model — HRU delineation, SWAT+ simulation, output analysis and maps.

AT A GLANCE

Program Summary

PROGRAM	Professional Certification Program — Advanced GIS with Point Cloud Technology
DURATION	70 Days
MODE	Online & Offline
STRUCTURE	3 core sections — 34 modules — plus 2 capstone projects
SOFTWARE	QGIS, Google Earth Pro, WebODM, CloudCompare, Potree, QSWAT+, Git & GitHub
CERTIFICATION	ISO Certificate
PLACEMENT	CV preparation and connections to hiring firms
PREREQUISITES	None — beginners welcome

PROGRAM FEE

₹30,000

EMI options available

Talk to us about flexible payment plans that fit your schedule.

Certification

On successful completion of all modules and the two capstone projects, you receive an **ISO-certified Professional Certification in Advanced GIS with Point Cloud Technology** from Bimmantra Academy.

Placement Assistance

- CV and portfolio preparation
- Project presentation guidance
- Direct connections to hiring firms in our network

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Ready to begin?

Seats per batch are limited so every learner gets hands-on time with real data. Call or write to us to reserve yours.

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