Course Syllabus

Geoinformatics Training

Gis Vision India

Master GIS, Remote Sensing, and Spatial Analytics.

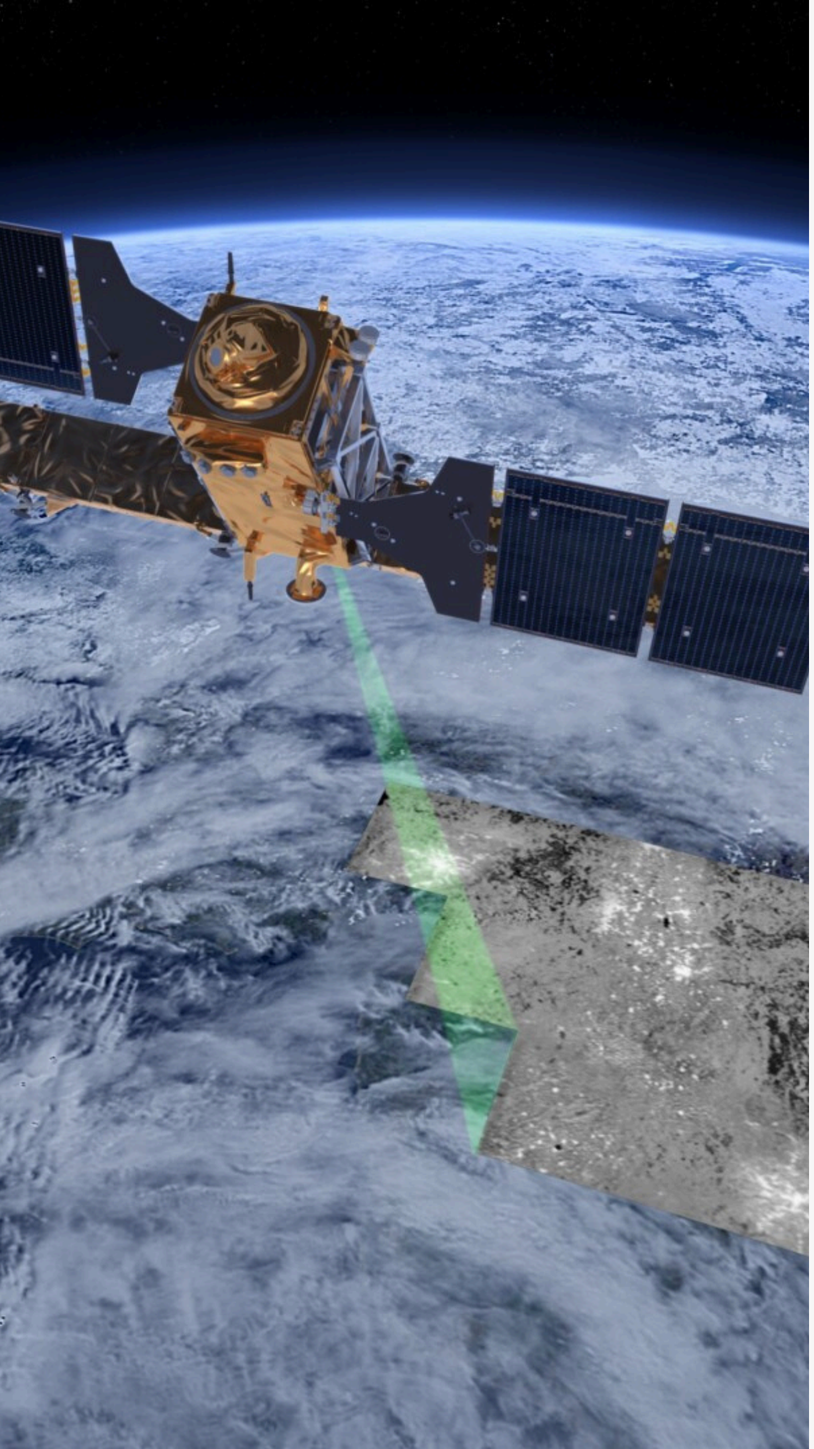
Course Overview

Academic & Delivery Information

- Course Title: Geoinformatics
- Course Duration: 1 Month
- Mode of Delivery: Live 1:1 Online Class
- Prerequisites: None

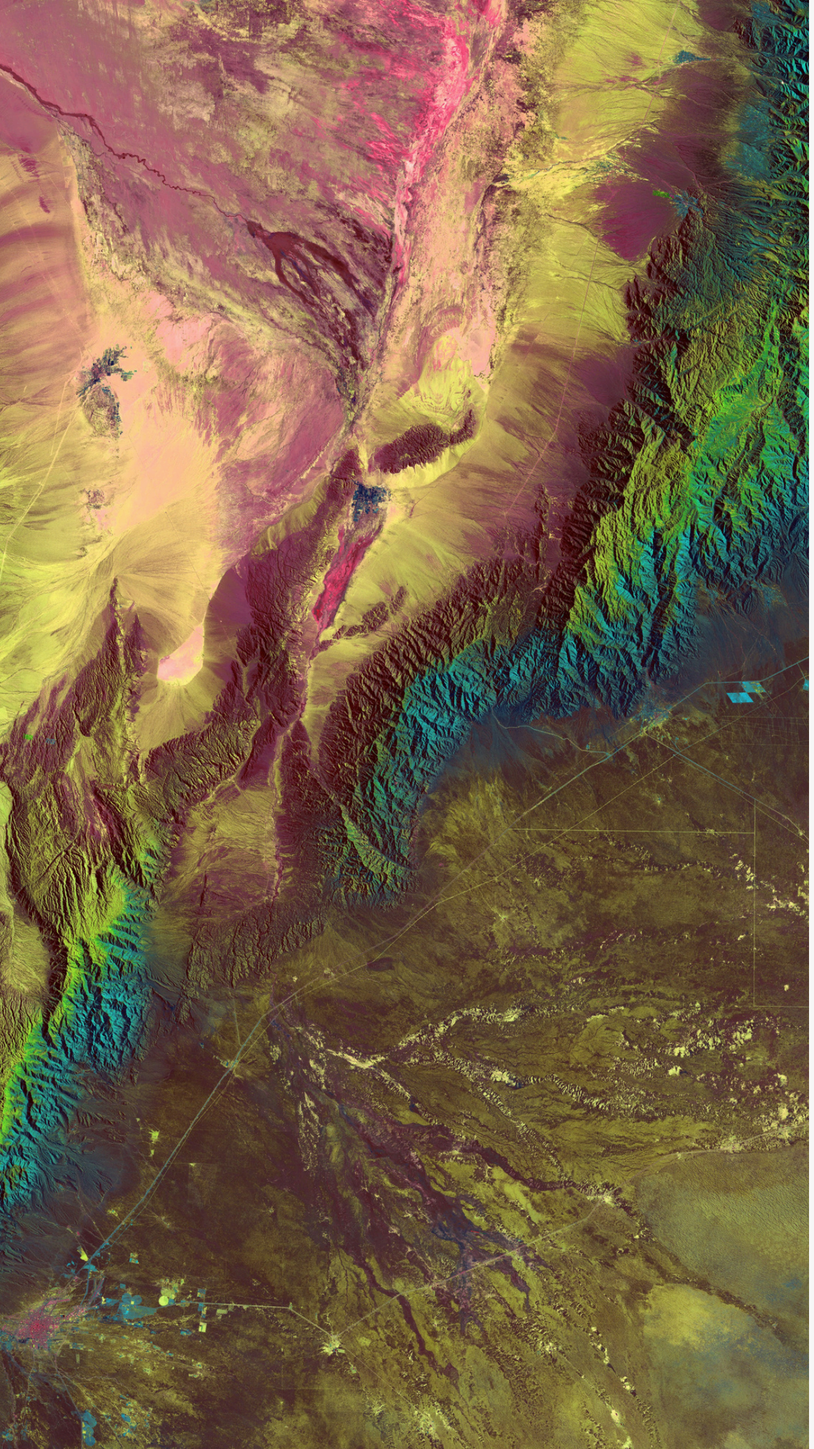
Learner Profile & Technology Stack

Target Audience (Students, Working Professionals, Civil Engineers, Planners, etc.)
Software & Tools Covered: Quantum GIS/ Arc GIS/ Google Earth



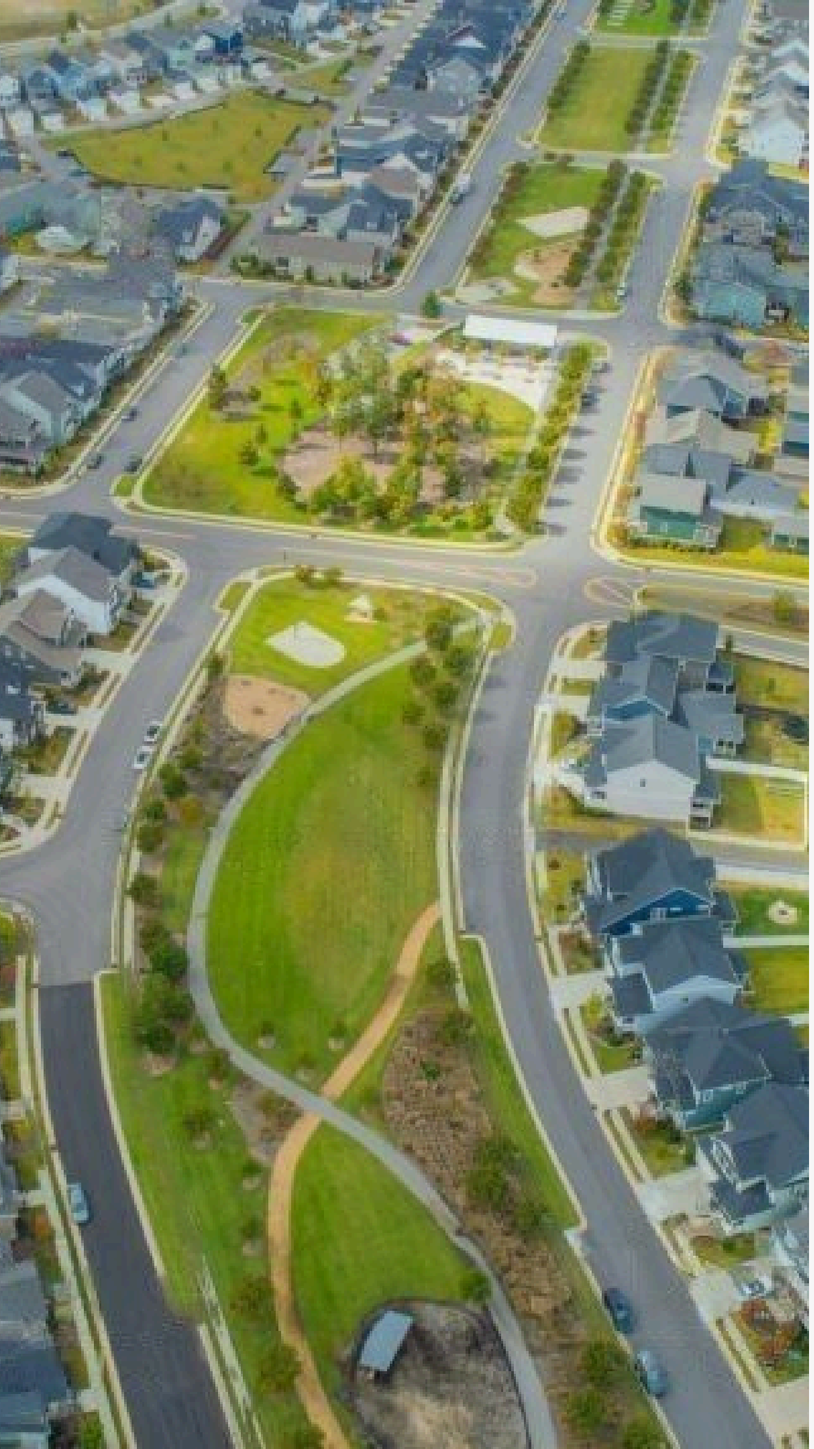
Topic 1: Introduction to Geographic Information Systems (GIS) Theory

- What is GIS?
- Definition & Relevance: Understanding GIS and its transformative impact across various fields.
- Evolution of GIS Technology: From paper maps to cloud-based, AI-integrated GIS.
- Core Components of GIS: Hardware, software, data, people, methods.
- Popular GIS Software
- GIS Data Types: Spatial vs. non-spatial; vector, raster, and tabular data.
- Coordinate Systems & Projections: WGS84, UTM, EPSG codes and re-projection.
- Data Models: Vector (point, line, polygon), Raster (grids, pixels).



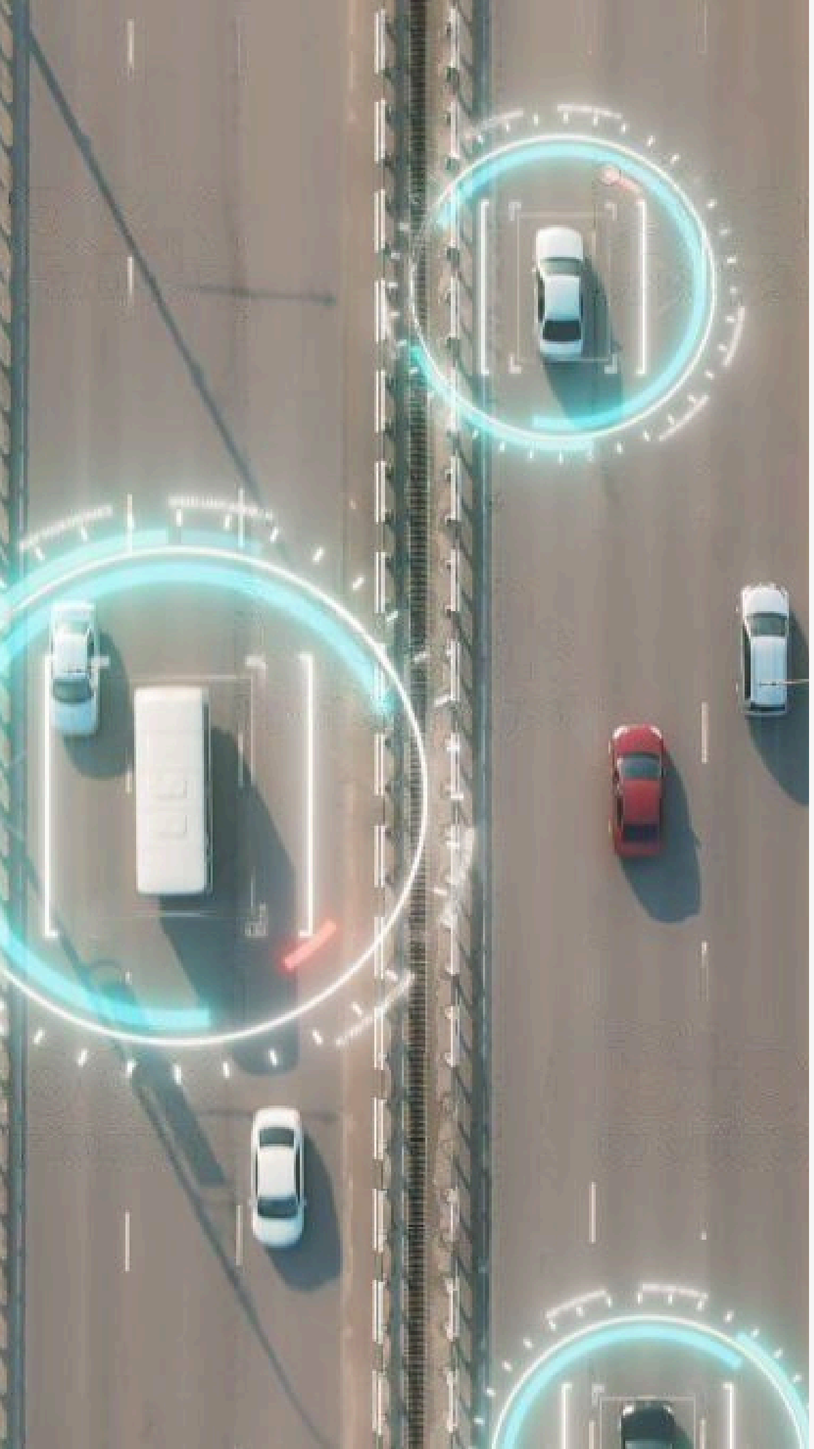
Topic 2: Data Acquisition & Sources (Theory)

- Types of GIS Data: Topographic maps, satellite imagery, GPS data, drone data, IoT sensors.
- Data Collection Techniques: o Field surveys (DGPS/RTK) o Digitization and scanning o UAV-based data collection
- Authoritative Data Sources: o Survey of India, NRSC-Bhuvan, USGS Earth Explorer, Copernicus Open Access Hub, OpenStreetMap, Indian State GIS Portals



Topic 3: Georeferencing & Map Alignment (Practical)

- Understanding Georeferencing
- Setting Coordinate Systems
- Adding Ground Control Points (GCPs)
- Image Rectification & Accuracy Assessment
- Use Cases: Aligning scanned maps or drone imagery.

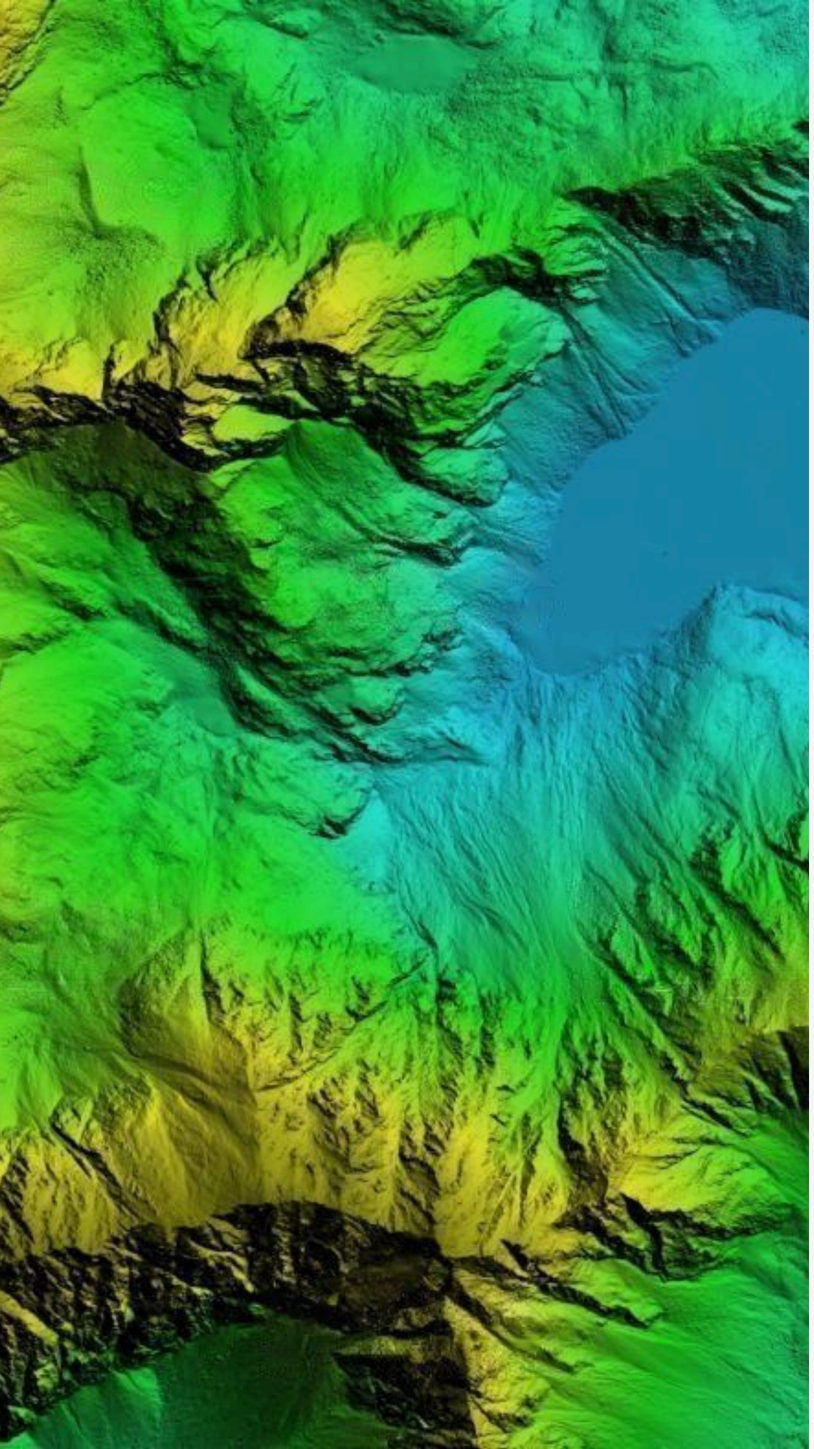


Topic 4: Spatial Data Digitization (Practical)

- Concept of Digitization
- Creating Shapefiles & Geodatabases
- Vectorization Techniques: Points, lines, polygons
- Shapefile Structure & Extensions
- Editing Tools & Topological Rules Building and Managing Attribute Tables
- AutoCAD to GIS Conversion: Layers, polyline extraction, coordinate correction

Topic 5: Map Design & Layout Elements (Practical)

- Map Layout Best Practices
- Components: Title, North Arrow, Scale, Legend o Grid Lines & Coordinates o Labels, Annotations, and Insets o Borders & Boundaries o Data Sources, Copyrights & Metadata
- Cartographic Principles: Clarity, hierarchy, symbology, balance.

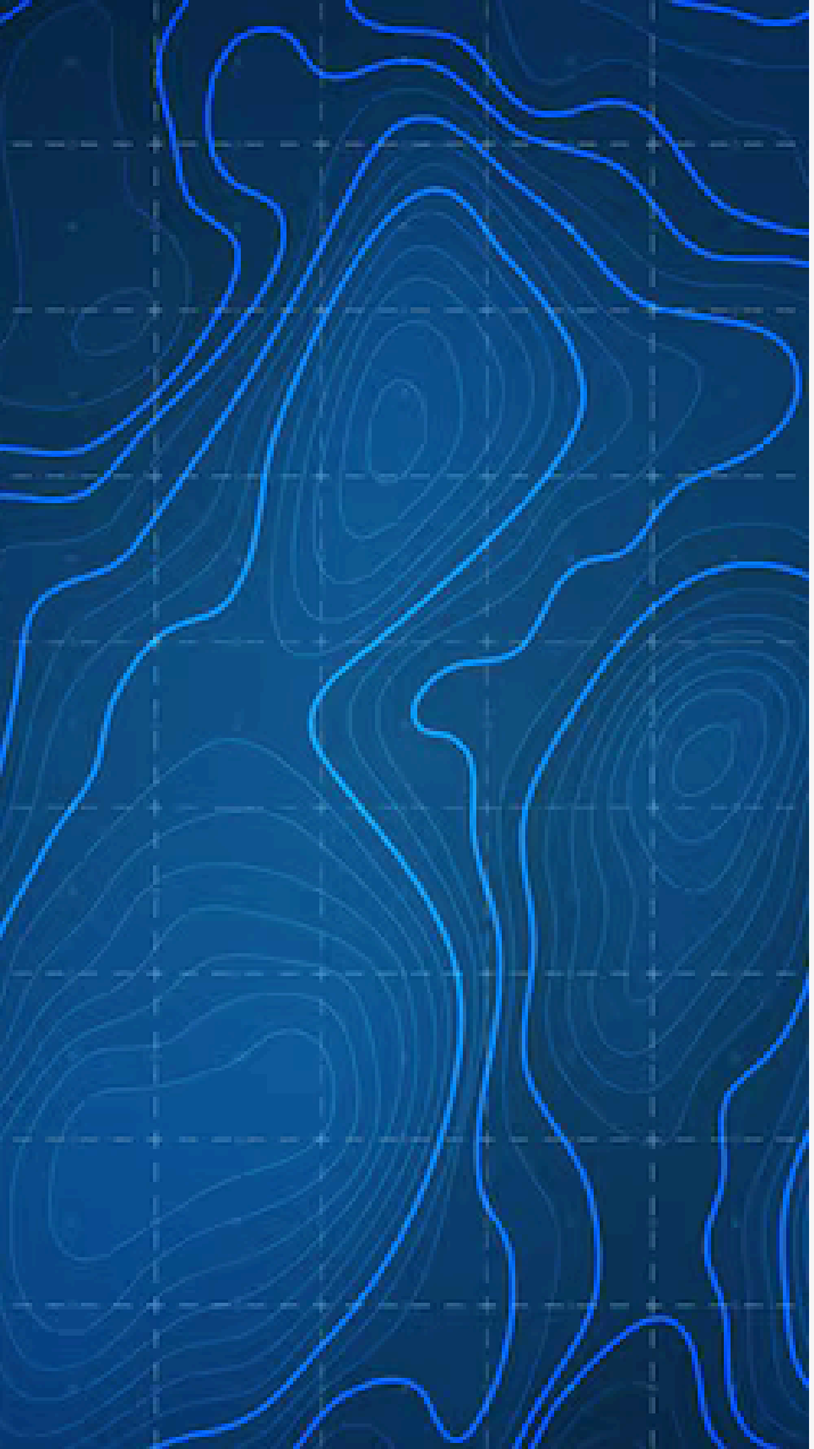


Topic 6: Thematic Mapping (Practical)

- Choropleth & Graduated Symbol Maps
- Dot Density Maps
- Isopleth and Contour Maps
- Flow & Network Maps
- 3D Thematic Maps (Terrain, Population)
- Heat Maps & Kernel Density Maps
- Time-Series Animation Maps (e.g., change detection)

Topic 7: GIS Spatial Analysis (Practical)

- Buffering & Proximity Analysis
- Overlay Operations: Intersect, Union, Identity
- Spatial Join and Relationship Mapping
- Clipping, Erasing & Merging
- Dissolve, Aggregate, and Summarize
- Hotspot & Spatial Pattern Analysis
- Zonal Statistics & Terrain Modelling
- Network Analysis: Shortest path, service area, accessibility modelling

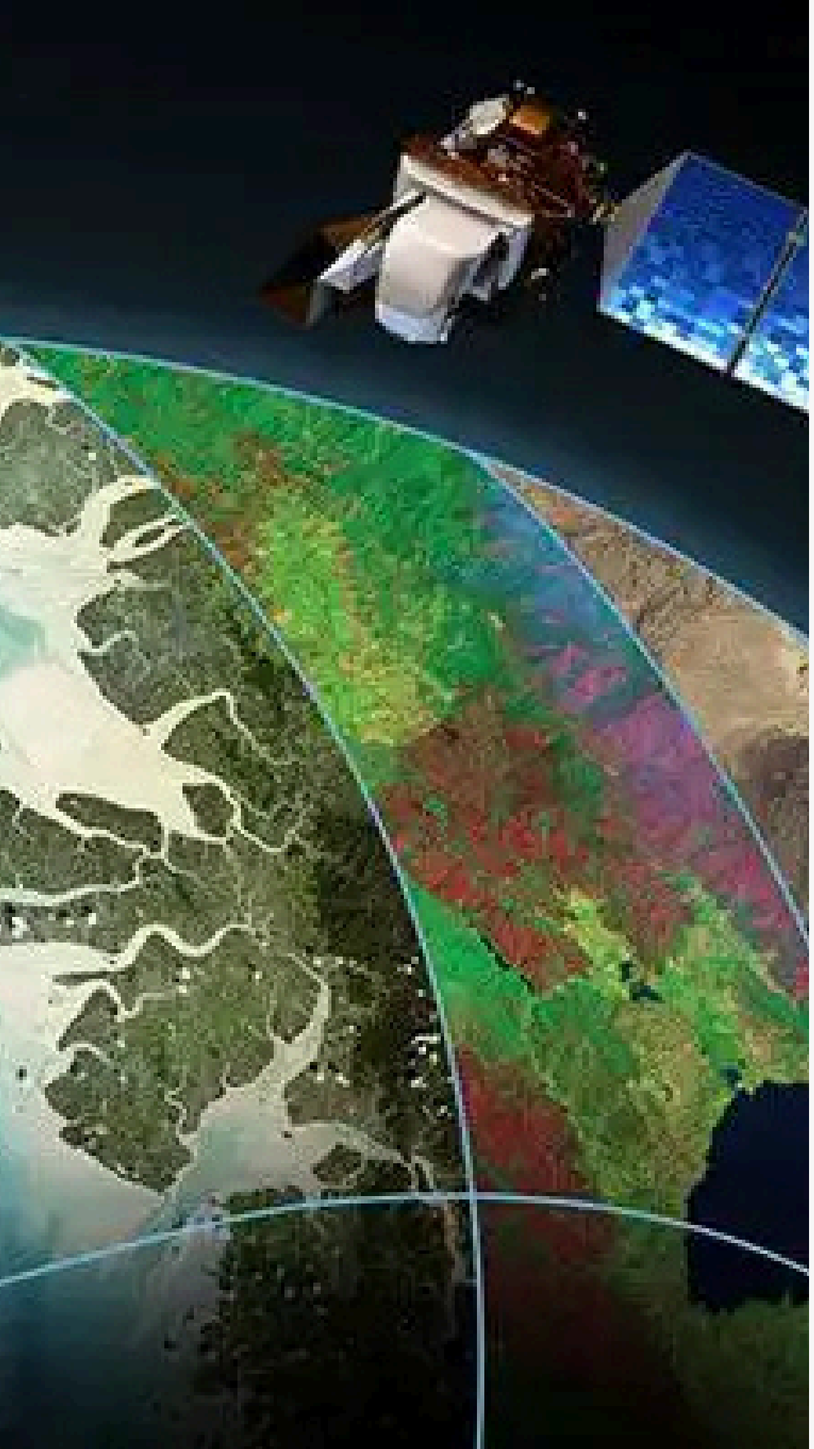


Topic 8: Data Transformation & Integration (Practical)

- Vector-Raster Interconversion
- Coordinate System Transformation (Reprojection)
- Data Merging, Splitting & Aggregation
- Excel to GIS (XY Data Import)
- GPS Data Conversion & Correction (GPX, KML, CSV)
- AutoCAD File Integration
- Using GeoJSON & Web Services (WFS/WMS)
- Metadata Creation and Standards

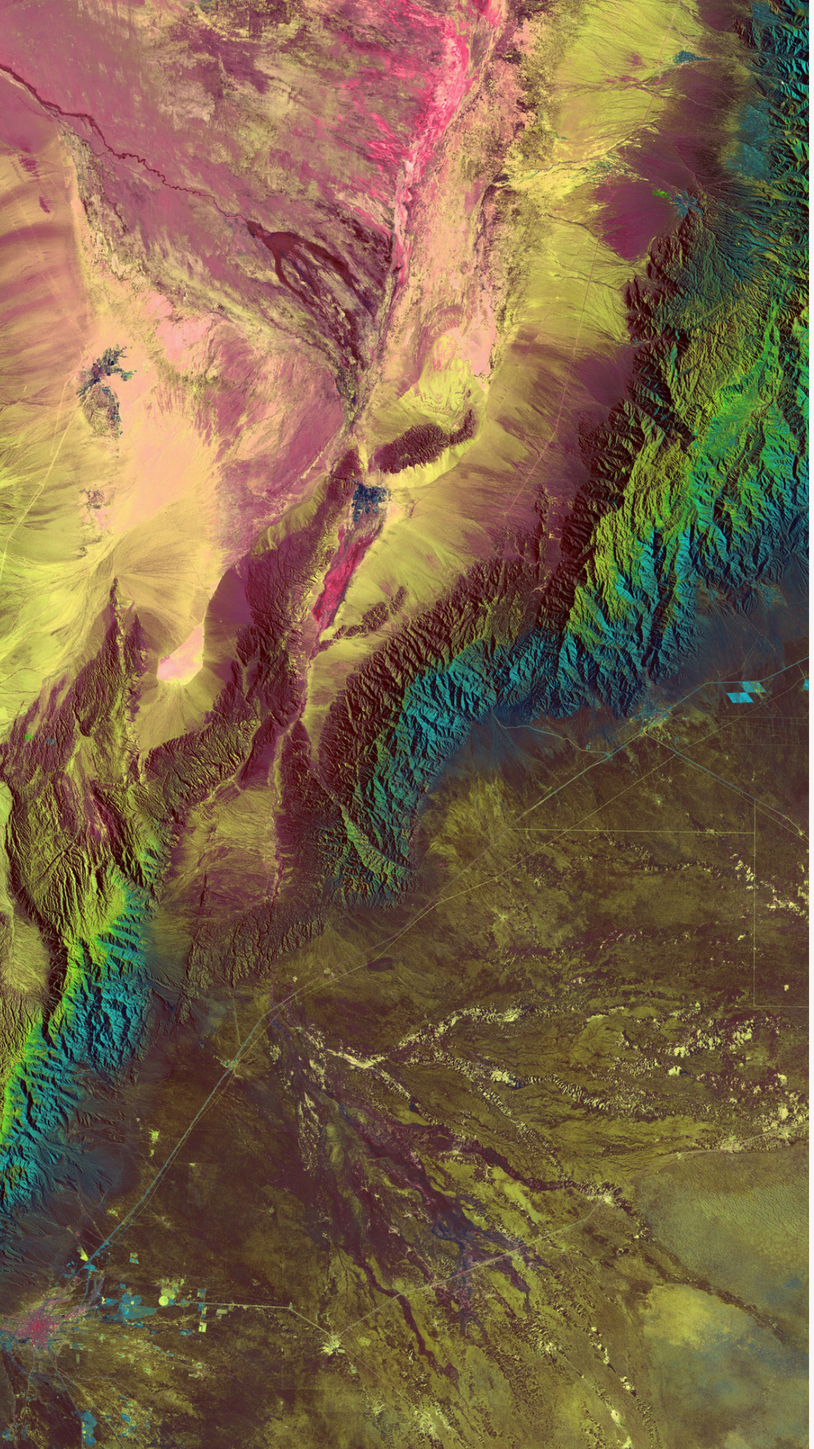
Topic 9: Fundamentals of Remote Sensing (Theory)

- What is Remote Sensing & How It Works
- Electromagnetic Spectrum & Spectral Signatures
- Types of Remote Sensing: Active (Radar/LiDAR) vs Passive (Optical)
- Platforms: o Satellite: Landsat, Sentinel, IRS o Aerial: UAV/Drones o Ground-based sensors
- Sensor Resolutions: Spatial, Spectral, Temporal, Radiometric



Topic 10: Remote Sensing Data Processing (Practical)

- Understanding Bands/Channels
- Digital Elevation Models (DEM, DSM, DTM)
- Ortho-rectification & Mosaicking
- Cloud-based Processing Platforms: Google Earth Engine, Sentinel Hub



Topic 11: Image Interpretation & Classification (Practical)

- Visual Interpretation Elements: Tone, shape, size, pattern, texture
- Supervised vs. Unsupervised Classification
- Image Enhancement Techniques: Contrast stretching, filtering
- Accuracy Assessment & Confusion Matrix
- Object-Based Image Analysis (OBIA)
- Time-Series and Change Detection Analysis

Course Objectives

Objective 1:Learn the Language of Location

Build a solid foundation in GIS concepts and spatial thinking to understand, create, and interpret geospatial data confidently.

Objective 2: Turn Data into Decisions

Apply spatial analysis, mapping, and visualization techniques to solve real-world problems using industry-standard GIS tools.

Objective 3: Become Industry-Ready

Gain hands-on project experience, practical workflows, and professional exposure aligned with current geospatial industry demands.

Why This GIS Course Stands Apart ?

Built for Industry

What the industry uses is what you learn

Tools That Employers Expect

Train on tools trusted by professionals

Mentorship from Working Professionals 10+ years of Experience

Learn from people who apply GIS every day.

Limited Batches for Better Attention

“Quality over quantity—always.”
Over 95% of course duration are dedicated to hands-on labs and real datasets

Course Policies

Enrollment Policy

- Enrolment is confirmed only after successful registration and fee payment.
- Seats are limited and allotted on a first-come, first-served basis.
- Course access credentials will be shared prior to the commencement date

Attendance Policy

- A minimum of 75% attendance is required to be eligible for course completion certification.
- Missed sessions may be compensated through recorded content.

Certification Policy

- Meeting minimum attendance requirements
- Successful completion of assessments and project

Course Policies

Code of Conduct

- Learners are expected to maintain professional behaviour during sessions and interactions.
- Any form of misconduct, plagiarism, or misuse of training materials may lead to termination of course access without refund.
- Respectful communication with instructors and peers is mandatory.

Recording & Content Usage Policy

- Course materials, recordings, datasets, and documentation are proprietary.
- Redistribution, recording, or commercial use of training content is strictly prohibited without written permission.

Refund & Cancellation Policy

- Fees once paid are non-refundable and non-transferable.
- Course rescheduling or cancellation by the organisation will be communicated in advance, with suitable alternatives offered.

Technical Requirements Policy

- Learners must ensure access to a compatible computer, stable internet connection, and basic technical readiness.
- Technical support will be limited to course-related software guidance only.
- Any significant requiremwnt will be communicated in advance.

Contact Us

Scan the QR code for the Admission

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Consultation Hours

2 PM to 4 PM, Monday to Friday