

भारत अंतरिक्ष अकादमी

अंतरिक्ष शिक्षा विभाग (आईएसडब्ल्यू)

बी ए/14 बी जनकपुरी

नई दिल्ली - 110058, भारत

दूरभाष संख्या : 011-44749707, 8130317917

ईमेल: info@isa.ac.in, contact@isa.ac.in

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India Space Academy

Department of Space Education (ISW)

BA/ 14 B Janakpuri

New Delhi - 110058, India

Telephone no: 011-44749707, 8130317917

Email : info@isa.ac.in, contact@isa.ac.in

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Ref- ISA/IND/CL/125/2026

Date: 18 /09/2026

From

Director

India Space

Academy New

Delhi

To,

Registrar, Vice Chancellor, Head of Dept, Dean, Principal,
All Central Universities, State Universities, Deemed Universities,
State Private Universities, Colleges, Institutions,
All States - India.

Subject: Regarding the registration of students and faculty of your University/College institutions for the Winter Training and Internship 2026 - 2027.

Respected Sir/Madam,

In alignment with the **National Education Policy (NEP) 2020** and the vision of **Viksit Bharat @2047**, India is rapidly advancing its capabilities in the global space economy. To support the goals of the **Indian Space Policy 2023**, it is essential to bridge the gap between academic learning and technical expertise. Strengthening research and innovation within our Higher Education Institutions (HEIs) remains a primary objective to ensure a self-reliant and technologically empowered nation.

India Space Academy is pleased to announce the commencement of its **Winter Training and Internship 2026-27**. This initiative is designed to provide students and faculty with high-level technical skills in the specialised domain of:

➤ Remote Sensing and GIS: From Satellite Data to Machine Learning

The program is delivered in two batches and in two phases to ensure a comprehensive transition from theory to application:

Batch	Category	Details
Batch 1	Phase 1: Training Sessions	23 Nov 2026 – 09 Dec 2026
	Phase 2: Project work	10 Dec 2026 – 06 Jan 2027
Batch 2	Phase 1: Training Sessions	27 Jan 2027 – 12 Feb 2027
	Phase 2: Project work	13 Feb 2027 – 13 Mar 2027

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Program Details:

- **Mode:** Online
- **Language:** English
- **Eligibility:** UG/PG/PhD Students, Research Scholars, Faculty, and Professionals.
- **Technical Requirements:** Laptop/Desktop with a stable internet connection
- **Certification:** Participants will be eligible for a Training Certificate (15 days) and an Internship Completion Letter (45 days) upon successful submission of the required projects.
- **Tuition Fees:** ₹1750/- (**Non Refundable**)
- Available Limited seats per batch are as follows:
- **Batch 1: 1140 seats**
- **Batch 2: 1250 seats**

We cordially invite the students and faculty of your esteemed institution to participate in this national-level capacity-building program. The exposure to advanced scientific tools and direct interaction with subject matter experts will significantly enhance the technical proficiency and research output of your departments.

An official letter and training coursework have been attached to this letter for more information and details.

The **Chancellor/Vice-Chancellor/Director/Principal/Heads of Departments** are requested to circulate this circular among all relevant academic circles, put the information on your institution's website and other channels to ensure maximum registration so that they can benefit from the program.

Your active participation will significantly contribute to enhancing the technical skills and innovation potential of students and teachers.

Registration Details

- **Registration Start Date (Batch 1 & 2):** 18 Sept 2026 (Friday)
- **Registration End Date (Batch 1):** 14th Nov 2026 (Saturday)
- **Registration End Date (Batch 2):** 20th Jan 2027 (Wednesday)
- **Registration Link:** www.isa.ac.in/internship

Note:

No stipend/Remuneration/Financial Assistance will be given during the winter training.

भवदीय

निदेशक/Director

भारत अंतरिक्ष अकादमी/India space Academy

नई दिल्ली/New Delhi

निदेशक कार्यालय /Director Office

भारत अंतरिक्ष अकादमी /India space Academy



India Space Academy

Winter Training & Internship 2026-2027

Remote Sensing and GIS **From Satellite Data to Machine Learning**



India Space Academy



"From Satellite Data to Machine Learning: Winter Internship on Remote Sensing and Geospatial Analysis Using Python"

Programme Objective

The objective of this Winter Training and Internship Programme is to provide participants with foundational to intermediate knowledge of Remote Sensing, GIS, Python programming, and Machine Learning for geospatial analysis through practical and workflow-oriented training. During the 15-day lecture and hands-on phase, participants will learn satellite data handling, raster preprocessing, spectral-index calculation, feature preparation, data visualisation, and basic supervised and unsupervised machine-learning techniques, including Random Forest and K-means clustering. This will be followed by a 30-day guided project phase in which participants will apply these skills to real-world applications in agriculture, forestry, environmental monitoring, urban studies, and disaster management. Upon completion, participants will be able to prepare remote-sensing datasets, develop and evaluate introductory machine-learning models, interpret their outputs, and produce meaningful prediction maps.

Mode: Online

Duration: 45 Days: 15 Days of Lectures and Hands-on Training, followed by 30 Days of Guided Project Work

Session Duration: 2 Hours per Day: Live Lecture and Hands-on Practice

Platform: Zoom

Course Coordinator: Miss Alisha Sinha, Scientist, India Space Academy

Pre-requisite: Participants are not required to have prior experience in machine learning, Python programming or advanced remote-sensing analysis. However, a basic familiarity with computers and a strong motivation to learn and apply geospatial technologies are desirable



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Day	Topic	Hands-on component
1	Introduction to Remote Sensing Data for Machine Learning	Understanding satellite bands, pixels, raster data and spatial resolution
2	Python Fundamentals for Geospatial Data	Variables, lists, conditions, loops and functions
3	Working with Geospatial Libraries in Python	Introduction to NumPy, Pandas, Matplotlib, GeoPandas and Rasterio
4	Reading and Visualizing Satellite Images	Opening raster bands, checking metadata and displaying satellite images
5	Raster Preprocessing for Machine Learning	Clipping, resampling, reprojection, NoData handling and raster alignment
6	Feature Generation from Satellite Data	Calculating NDVI, NDWI, NDBI and other predictor variables
7	Preparing Training Data	Creating sample points, extracting raster values and assigning target classes
8	Introduction to Machine Learning	Features, labels, training data, classification, regression and clustering
9	Data Preparation for ML Models	Cleaning data, handling missing values and train-test splitting
10	Supervised Classification	Implementing a Random Forest classifier using satellite variables
11	Unsupervised Classification	Applying K-means clustering to multispectral satellite data
12	Model Evaluation and Accuracy Assessment	Confusion matrix, accuracy, precision, recall and F1-score
13	Model Interpretation and Feature Importance	Understanding important satellite bands and environmental variables
14	Prediction Mapping and GIS Integration	Converting ML predictions into a classified raster and displaying it in QGIS
15	Complete ML Workflow and Project Orientation	Data → preprocessing → features → model → evaluation → prediction map

Projects

- Vegetation and Non-Vegetation Classification Using Random Forest
- Waterbody Extraction Using Satellite Indices and Machine Learning
- Built-Up Area Classification Using Sentinel-2 Data
- Unsupervised LULC Classification Using K-Means
- Comparison of NDVI Thresholding and Random Forest Classification



India Space Academy



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