

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

वेबसाइट: www.isa.ac.in



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

Website: www.isa.ac.in

Ref- ISA/IND/Circular/121/2025

Date: 01 October 2025

From

Director

India Space Academy

New Delhi.

To

Registrar, Vice Chancellor, 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/institution in winter training on Space Science and Technology 2025 (A Skill training and internship program).

Respected Sir/Madam,

Under the leadership of **Hon'ble Prime Minister Shri Narendra Modi**, India's space sector has witnessed accelerated growth through strategic reforms and national missions. The introduction of the **Indian Space Policy 2023 and the Geospatial Policy 2022** has opened avenues for private participation and projected a **₹1 lakh crore geospatial economy by 2030**. The government has **launched research fellowships, internship schemes, and capacity-building programs to strengthen academic engagement**. Fields such as astronomy and astrophysics are gaining prominence through ISRO-led missions and international collaborations. Drone technology is being integrated into agriculture, surveillance, and disaster response, while remote sensing and GIS are vital for urban planning and environmental monitoring. **To meet rising demand, academia and industry are jointly advancing skill development through technical training, project-based learning, and AI-integrated geospatial analytics**. Initiatives under Skill India, NEP 2020, and Viksit Bharat@2047 aim to equip youth with domain expertise, fostering a self-reliant and innovation-driven space ecosystem.

The **National Education Policy (NEP) 2020** emphasises the importance of fostering quality research within the Higher Education system. Research and innovation are key components for enhancing the academic excellence of Higher Education Institutions (HEIs). Addressing the societal challenges of our nation requires a robust and dynamic higher education ecosystem, prioritizing research, innovation, and technological advancements. The integration of these elements forms the cornerstone of **Atma-Nirbhar Bharat (Self-reliant India)**.

India Space Academy, under the **Department of Space Education of India Space Week**, aims to promote space education, innovation, technology, and employment among students and teachers of the nation. The academy is organising the **winter training on Space Science and Technology 2025**.

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The winter training aligns with the vision of the Prime Minister of transforming India into a global leader in technology, sustainability, and space sciences. The programme covers Astronomy & Astrophysics, Advanced Drone Technology, and Remote Sensing & GIS with AI applications. Sessions will be led by experts from ISRO, NASA, IITs, and industry, featuring lectures and hands-on project work. Participants will gain practical exposure to scientific tools, geospatial analysis, and emerging space technologies.

We are delighted to invite all students and teachers of the university/college/institution to register for the program. This training is an excellent opportunity for students/teachers to gain hands-on experience, interact with leading experts from ISRO, NASA, and IITs, and apply knowledge in real-world scenarios.

A formal announcement and brochure of the training program is attached to this letter

The Chancellor/Vice-Chancellor/Director/Principal/Registrar/Head of Departments are requested to circulate the information among the students and teachers of your institutions and ensure their registration so that they can benefit of from the program.

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

NOTE:

Registration Star: 1st October 2025

Registration End: 10th November 2025 till 11:55 PM

Program Start: Will Be Announced Later

Program Mode: Online

Registration Link: <https://isa.internship.indiaspaceweek.org/>

Tuition Fee: ₹1750/- (Non-Refundable)

“विकसित भारत @2047 – आत्मनिर्भर, सशक्त और उन्नत भारत”

भवदीय
Amar Kumar

निदेशक/Director

भारत अंतरिक्ष अकादमी/India space Academy

नई दिल्ली/New Delhi

निदेशक कार्यालय/Director Office

भारत अंतरिक्ष अकादमी/India Space Academy

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Ref- ISA/IND/WI/121/2025

Date: 01 October 2025

Winter Training on Space Science and Technology 2025

(A Skill Training & Internship Program)

Announcement

India Space Academy is pleased to announce the **Winter Training on Space Science and Technology 2025**, a premier educational initiative aimed at equipping students with cutting-edge knowledge in Astronomy & Astrophysics, Advanced Drone Technology and Remote Sensing and GIS. This **online training program**, scheduled from **December 2025 to January 2026**, is developed in collaboration with renowned scientists from **ISRO, NASA, IITs, and Industry experts**.

The **6-week (45-day) training** will be led by **national and international experts**, featuring **interactive lectures** and **hands-on sessions**, providing participants with practical projects in the Astronomy & Astrophysics, Advance Drone and Remote Sensing and GIS.

Training Topics:

1. Astronomy & Astrophysics.
2. Advance Drone Technology.
3. Remote Sensing & GIS from Basics to AI-Powered Geospatial Analysis.

Eligibility & Requirements:

- Open to **Undergraduate (UG), Postgraduate (PG), and PhD students** who are currently pursuing or have completed their degrees.
- Faculties/Lecturers who are interested in learning the topics are also welcome to join the training
- The participants **must have a laptop/computer and good internet** connectivity to take the **online classes and do the project work**.
- After the registration, students and faculty are required to submit a **NOC duly signed by their department head/supervisor/mentor**. Those students who are currently not enrolled in any institution are not required to submit the NOC.

Application Process

- You can select any one of the training topics as per your area of Interest.
- Admission is strictly on a first-come, first-served basis, with available seats as follows
 1. Astronomy & Astrophysics: **1080 seats**
 2. Advanced Drone: **1050 seats**
 3. Remote Sensing and GIS: **1140 seats**

The registration portal will close once capacity is reached.

- Training duration is flexible, ranging from **45 days to 60 days**, subject to modifications deemed necessary by the India Space Academy organising team based on program requirements.
- The **Trainees/ Project Interns** shall **not be eligible for any stipend/ remuneration/ financial assistance**.

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Training Conduction:

- The training will be conducted **online**.
- A **WhatsApp announcement** group will be made for all official announcements.
- Each participant will get access to the **LMS portal** to view their personal details, recordings of the lectures and other resources relevant to the training.
- The training schedule will be released later.
- The attendance of the participants during the online classes will be recorded.
- After completion of the training, the students will be awarded a training certificate.

Fee Structure

- **Training Fee:** ₹1,750/- per training topic
- Covers **expert-led instruction, administrative processing, and training platform access**.
- The training fee is **non-refundable**.

Internship Opportunity

Participants who undertake a **project under the India Space Academy** and submit their report will have their training upgraded to an internship and will receive an **internship completion letter** along with a training certificate. This internship will be conducted **online**, with **no stipend provision**.

How to Register

Registration Link: <https://isa.internship.indiaspaceweek.org/>

Registration Start Date: 01/10/2025

Registration End Date: 10/11/2025 till 11:55 pm

“विकसित भारत @2047 – आत्मनिर्भर, सशक्त और उन्नत भारत”

भवदीय

निदेशक/Director

भारत अंतरिक्ष अकादमी/India space Academy
नई दिल्ली/New Delhi

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भारत अंतरिक्ष अकादमी/India Space Academy



India Space Academy

Remote Sensing & GIS From Basics To Ai-Powered Geospatial Analysis

Winter Training on Space Science and Technology 2025
(A Skill Training & Internship Program)

(December to January)

This training programme introduces participants to the fundamentals of Remote Sensing (RS) and GIS, then gradually integrates Artificial Intelligence (AI) and Machine Learning (ML) techniques for geospatial data analysis. The course is designed to provide both conceptual knowledge and practical hands-on skills, enabling participants to independently apply AI-powered geospatial workflows in agriculture, forestry, disaster management, and climate studies.

Tentative Topics:

- 1) GeoVision Basic
- 2) Smart Earth Data
- 3) Map Intelligence
- 4) Applied Geo-AI



Registration Start Date: 01/10/2025

Registration End Date: 10/11/2025 till 11:55 pm

Registration Link: <https://isa.intership.indiaspaceweek.org/>



India Space Academy



Astronomy & Astrophysics

Winter Training on Space Science and Technology 2025
(A Skill Training & Internship Program)

(December to January)

Awarded for distinguished participation, demonstrating knowledge in celestial science, exoplanet exploration, astrophotography, and research methodology with paper writing, showcasing dedication to advancing skills and excellence in the field of astronomy and astrophysics.

Tentative Topics:

- 1) Introduction to Astronomy & Astrophysics
- 2) Exoplanets
- 3) Astrophotography
- 4) Research Methodology & Paper Writing



Registration Start Date: 01/10/2025

Registration End Date: 10/11/2025 till 11:55 pm

Registration Link: <https://isa.intership.indiaspaceweek.org/>



India Space Academy

Advance Drone Technology

Winter Training on Space Science and Technology 2025
(A Skill Training & Internship Program)

(December to January)

This training explores the complete journey of drone development, from **structural design and assembly** to **flight controller integration** and fine-tuning. Participants will also learn **drone automation** using advanced flight software. The course combines theory and hands-on practice to build fully functional and efficient drones.

Tentative Topics:

- 1) Structural design of drone
- 2) Drone assembly
- 3) Flight controller integration and fine tuning
- 4) Drone automation using flight software



Registration Start Date: 01/10/2025

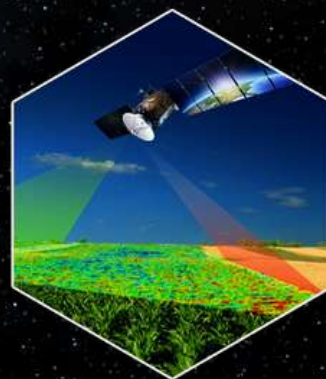
Registration End Date: 10/11/2025 till 11:55 pm

Registration Link: <https://isa.intership.indiaspaceweek.org/>



Winter Training Program 2025

(A Skill Training & Internship Program)



Training Coursework



ASTRONOMY AND ASTROPHYSICS

Day	Topic	Description
1	Foundations of Astronomy	Explore celestial systems, observational frameworks, and astronomical relevance to space missions.
2	Celestial Mechanics & Orbital Dynamics	Analyse planetary motion, orbital elements, and simulation techniques for mission planning.
3	Stellar Structure & Evolution	Study stellar life cycles, internal physics, and classification using HR diagrams.
4	Astrophysical Processes	Understand radiation, magnetism, and energy transfer in celestial environments.
5	Cosmology & Large-Scale Structure	Examine universe models, dark matter/energy, and cosmic background radiation.
6	Exoplanetary Science: Overview	Classify exoplanets and explore planetary formation and system architectures.
7	Detection Techniques & Instrumentation	Learn transit, radial velocity, and imaging methods with mission-based data.
8	Habitability & Atmospheric Characterisation	Assess habitability indices and analyse exoplanet atmospheres for biosignatures.
9	Astrophotography: Theory & Techniques	Master imaging principles, telescope optics, and night sky photography.
10	Image Processing & Data Analysis	Apply stacking, photometry, and astrometry using advanced software tools.
11	Observational Astronomy & Field Methods	Conduct sky observations and prepare proposals for telescope time.
12	Research Methodology in Space Science	Design research frameworks, formulate hypotheses, and plan experiments.
13	Literature Review & Meta-Analysis	Perform scholarly reviews and synthesise findings from existing datasets.
14	Scientific Writing & Technical Communication	Draft research papers in LaTeX format and prepare them for peer review.
15	Research Ethics, IP & Publication Strategy	Learn ethical practices, IP rights, and journal submission protocols.

Note: The above topics are tentative. The organizing team can change the topic as per the requirement of the coursework.



DRONE TECHNOLOGY

Day	Topic	Description
1	Introduction to Drones and UAVs	Brief history, types of drones, and their evolution
2	Science of Flight	Principles of aerodynamics, lift, thrust, drag, and weight
3	Drone Parts and Configurations	Frame types, motors, propellers, ESCs, batteries, and configurations (X, +, H)
4	Drone Design using SolidWorks (Part 1)	Introduction to CAD modelling and designing a drone structure
5	Drone Design using SolidWorks (Part 2)	Advanced CAD design and 3D visualisation
6	Drone Structure Simulations/ Thrust Calculation	Finite element analysis, CFD
7	Flight Computers and Sensors	Understanding flight controllers, IMU, GPS, barometer, and compass
8	Fly with Arduino – PID Control	Hands-on understanding of Arduino-based control and PID tuning basics
9	Basics of Python for Drone Applications (Part 1)	Introduction to Python Programming
10	Basics of Python for Drone Applications (Part 2)	Introduction to Python Programming
11	Computer Vision for Drones	Object detection, tracking, and OpenCV integration
12	AI/ML in Drone Technology	Applications of AI/ML in navigation, surveillance, and agriculture
13	Entrepreneurship in the Drone & UAV Industry	Drone regulations, startups, licensing, and business models
14	Structure Manufacturing	3D Printing, Composite manufacturing and Laser Cutting
15	DIY Drone Assembly & Flight Testing (Part 1)	Assembling the frame, motors, and flight controller setup
16	DIY Drone Assembly & Flight Testing (Part 2)	Calibration, flight test, troubleshooting, and assignment submission

Note: The above topics are tentative. The organizing team can change the topic as per the requirement of the coursework.



Remote Sensing and GIS

Week	Day	Topic
Week 1	1	Inaugural Session & Orientation – Introduction to RS, GIS, and AI
	2	Fundamentals of Remote Sensing & Satellite Systems
	3	RS Processes & Image Resolutions; Image Interpretation
	4	Satellite Data Acquisition & Preprocessing
	5	Fundamentals of GIS & Spatial Data Handling in QGIS
	6	Vegetation & Water Indices (NDVI, EVI, SAVI, NDWI, MNDWI)
Week 2	7	Terrain Mapping & DEM Analysis
	8	Introduction to Machine Learning for RS
	9	Image Classification – Supervised & Unsupervised
	10	AI/ML-Based LULC Mapping using Python
	11	Multi-Temporal Change Detection using RS & ML
	12	Deep Learning for Object Detection in Satellite Images
Week 3	13	GIS Spatial Analysis & AI Integration
	14	Applications in Agriculture, Forestry & Disaster Management
	15	Project Presentation & Valedictory Session

Tools / Software: QGIS (Open-source GIS), Google Earth Engine (GEE), Python (Google Colab / Jupyter Notebook), Scikit-learn, TensorFlow/Keras (Introductory Level)

Note: The above topics are tentative. The organizing team can change the topic as per the requirement of the coursework.