



# IN-SPACE Short -Term Skill Development Course on Essentials of Space Data Products and Services



**Course Duration : April 26 - May 01, 2026**

**Venue : GNEC IIT Roorkee, Plot No 20, Knowledge Park 2, Greater Noida, UP.**

# IN-SPACE Short -Term Skill Development Course on Essentials of Space Data Products and Services



Government of India under the visionary leadership of Hon'ble PM Shri Narendra Modi has initiated historic space sector reforms. The objective of space reforms is to make India a leading space economy globally, through increased private sector participation. Indian National Space Promotion and Authorization Centre (IN-SPACE) has been formed under Department of Space (DOS), to promote, enable, authorize and supervise Non-Government Entities (NGEs) and academia to undertake space activities.

Skill development of Industry and Academia in Space Sector



**OBJECTIVE**



**COURSE  
INFORMATION**

In order to transform the Government's vision to reality, IN-SPACE in association with ISRO, NGEs and Academia is pleased to announce registration for the Short-Term Course on Space Data Products and Services. This unique course is designed for the benefit of NGEs and Academia on Space Data Products and Applications.

The course on “Essentials of Space Data Products and Services” is curated to empower the participants with basic understanding of the various data products generated from space platforms and their applications including practical demonstrations. The course starts with an introduction to fundamentals of Remote sensing technology, spectrum of space-based platforms and sensors, data types and their characteristics. Subsequently, several technical aspects related to digital image processing, Microwave SAR, Photogrammetry and LIDAR data processing, Elevation models, value added products are touched upon. GIS, Geo portals, APIs, Geospatial applications in water security, Geo Sciences, Marine & Oceanic applications, Satellite Meteorology, Navigation and ground-based augmentation, Disaster management are addressed. Planetary surface observations, Data Quality Evaluation and industry perspectives including use cases are included for completion.



**ABSTRACT**

### Inaugural Session (26-04-2026)

| Time               | Module            | Keynote talk   |  |
|--------------------|-------------------|--|--|
| 15:00 - 17:00 Hrs. | Inaugural Session | Leveraging Geospatial data for Gatishakti National Master Plan | Shri. Subhash Chandra Karol, Director, DPIIT |

### DAY-1 (27-04-2026)

| Time               | Module                                 | Title of Talk   | Faculty/Course Instructor                       |
|--------------------|--|---|---|
| 09:00 - 10:00 Hrs. | Remote Sensing Technology fundamentals | L1: Physical aspects of Remote Sensing (EMR properties, EM spectrum, atmospheric windows..)   | Prof. R D Garg, IIT Roorkee                     |
| 10:00 - 11:00 Hrs. | Remote Sensing Technology fundamentals | L2: Remote sensing Platforms and Sensors  | Prof. Akshay Pandey, IITM Jabalpur              |
| 11:00 - 11:30 Hrs. | Tea Break                              |   |   |
| 11:30 - 12:30 Hrs. | Remote Sensing Technology fundamentals | L3: RS data types and Characteristics (Optical, Microwave, Thermal, Hyperspectral, Spectral signatures, image interpretation.)                          | Prof. R D Garg, IIT Roorkee                     |
| 12:30 - 13:30 Hrs. | Digital Image Processing               | L4: Digital Image Preparation (statistics, color composites, geometry & radiometry corrections, enhancements, rectification, fusion, spectral indices.) | Prof. Akshay Pandey, IITM Jabalpur              |
| 13:30 - 14:30 Hrs. | Lunch Break                            |   |   |
| 14:30 - 15:30 Hrs. | Digital Image Processing               | L5: Change Detection and Image Classification / segmentation  | Dr. Surendra Sharma, IIRS/ISRO, Dehradun        |
| 15:30 - 16:30 Hrs. | Value Added Product                    | L6: Value Added Products from Satellite data  | Dr. Pramod Kumar, Ex-Dean Academics, IIRS/ ISRO |
| 16:30 - 17:00 Hrs. | Tea Break                              |   |   |
| 17:00 - 18:00 Hrs. | Practical Aspects                      | P1: Satellite data browsing, download & visualization Bhoonidhi and ISRO's regional hub for Landsat & Copernicus data                                   | Ms. Manju Sharma, Ex-DD, NRSC/ISRO              |

**DAY-2 (28-04-2026)**

| Time               | Module  | Title of Talk   | Faculty/Course Instructor  |
|--------------------|---|---|--|
| 09:00 - 10:00 Hrs. | Photogrammetry & LIDAR data processing              | L7: Fundamentals of photogrammetry (Stereo, Aerial, Satellite & UAV) & LIDAR data processing                    | Prof. (Retired) Sanjay Ghosh, Civil Engg, IIT, Roorkee           |
| 10:00 - 11:00 Hrs. | Elevation Models                                    | L8: Digital Elevation Models, Digital Terrain Models and Digital Surface models                                 | Shri. B Gopala Krishna Ex-DD, NRSC / ISRO                        |
| 11:00 - 11:30 Hrs. | Tea Break   |   |  |
| 11:30 - 12:30 Hrs. | Multi Sensor quality Evaluation and Quality Control | L9: Satellite data quality Evaluation and Quality Control of Optical, SAR, Hyperspectral & Thermal sensors data | Dr Surendra Sharma, IIRS/ISRO Dehradun                           |
| 12:30 - 13:30 Hrs. | Geographical Information system (GIS)               | L10: Introduction to GIS, Database Management System, Spatial data Analysis and Multi-criteria decision models  | Shri. Vinod Bothale, Ex-AD, NRSC/ISRO, Resident Expert, IN-SPACe |
| 13:30 - 14:30 Hrs. | Lunch Break   |   |  |
| 14:30 - 15:30 Hrs. | Geoportals and Geo-data repositories                | L11: Data and Services from MOSDAC and VEDAS  | Shri. Shashi Kant Sharma, Ex-GD, SAC                             |
| 15:30 - 16:30 Hrs. | Geoportals and Geo-data repositories                | L12: Bhuvan Geoportal for governance and services, Disaster risk reduction through Bhuvan & NDEM                | Shri. Vinod Bothale, Ex-AD, NRSC/ISRO, Resident Expert, IN-SPACe |
| 16:30 - 17:00 Hrs. | Tea Break   |   |  |
| 17:00 - 18:00 Hrs. | Practical Aspects                                   | P2: Installing QGIS, Downloading sample data and generaltools   | Dr. Alka Rani, Assistant Professor, IIT, Roorkee                 |

**DAY-3 (29-04-2026)**

| Time               | Module  | Title of Talk  | Faculty/Course Instructor  |
|--------------------|---|--|--|
| 09:00 - 10:00 Hrs. | Advanced Data Processing Techniques               | L13: AI and ML overview & usecases for Remote sensing data processing, Artificial Neural Networks, Big data, Analysis Ready Data (ARD)                       | Shri. Harish Karnataka, Scientist, IIRS/ISRO Dehradun                              |
| 10:00 - 11:00 Hrs. | Geospatial Applications                           | L14: Geospatial Applications in Forestry, Ecology and Environmental Sustainability   | Dr. C S Jha, Ex-CGM, NRSC/ISRO   |
| 11:00 - 11:30 Hrs. | Tea Break   |  |  |
| 11:30 - 12:30 Hrs. | Geospatial Applications                           | L15: Geospatial Applications in Agriculture and food security  | Dr. Prashant Rajankar, Sr Scientist & Project Manager, MahaAgriTech, MRSAC, Nagpur |
| 12:30 - 13:30 Hrs. | EO Applications                                   | L16: Geospatial Applications in water security, resource assessment and monitoring   | Dr. P V Raju, Ex-GD, NRSC/ISRO   |
| 13:30 - 14:30 Hrs. | Lunch Break                                       |  |  |
| 14:30 - 15:30 Hrs. | Geospatial Applications                           | L17: Data vs Data as service, OGC compliance, Building Geoportals  | Dr Harish Karnataka, Scientist, IIRS/ISRO Dehradun                                 |
| 15:30 - 16:30 Hrs. | Industry Talk - 1                                 | L18: Business use cases of satellite data - Experience Sharing   | Ms. Preeti Chaudhary Harvest Global,   |
| 16:30 - 17:00 Hrs. | Tea Break   |  |  |
| 17:00 - 18:00 Hrs. | Practical Aspects – Data analysis in earth Engine | P3: Working with Earth Engine – Data Catalogue, Time Series Data & Analysis Ready Data, Image Classification, Data export, ISRO's cloud based data analytics | Dr. Siddhartha Khare, CEO & Co-Founder, Bhoomicam & Asst Prof, IIT Roorkee         |

**DAY-4 (30-04-2026)**

| Time               | Module   | Title of Talk  | Faculty/Course Instructor                                      |
|--------------------|--|--|--|
| 09:00 - 10:00 Hrs. | Microwave SAR                                    | L19: Microwave SAR fundamentals and applications (geometry, processing, calibration/validation, applications)            | Dr Shashi Kumar, IIRS/ISRO, Dehradun                           |
| 10:00 - 11:00 Hrs. | Geospatial Applications                          | L20: Geospatial applications in Urban & Regional studies and infrastructure planning                                     | Dr. Venupopal, Ex-GD, NRSC/ISRO                                |
| 11:00 - 11:30 Hrs. | Tea Break  |  |  |
| 11:30 - 12:30 Hrs. | EO Applications                                  | L21: EO for Marine, Oceanic and Coastal Processes  | Dr. K Hanumant Rao, Ex-GD, NRSC/ISRO                           |
| 12:30 - 13:30 Hrs. | Geospatial Applications                          | L22: Geospatial Applications in Geosciences  | Dr. A K Joshi, Ex-Director, MRSAC, Nagpur, Ex-GH, NRSC/ISRO    |
| 13:30 - 14:30 Hrs. | Lunch Break                                      |  |  |
| 14:30 - 15:30 Hrs. | EO for climate change studies                    | L23: Study of Global Warming, Green House gases, Snow & Glacier, Permafrost, Coral beach, Sea Surface Temperature, NICES | Dr. CBS Dutt, Ex-Program Director, ISRO GBP, Ex-DD, NRSC/ISRO. |
| 15:30 - 16:30 Hrs. | Industry Talk - 2                                | L24: Use cases – Solutions using RS data and AI/ML/DL  | Mr. Amit Kumar, Co-founder, Suhora Technologies, Noida         |
| 16:30 - 17:00 Hrs. | Tea Break  |  |  |
| 17:00 - 18:00 Hrs. | Practical Aspects in GIS & multi-layer modelling | P4: Open street map data download, spatial overlay & analysis, multi-layer modelling                                     | Mr. Prasoon Kumar Gupta, IIRS, Dehradun                        |

**DAY-5 (01-05-2026)**

| <b>Time</b>        | <b>Module</b>   | <b>Title of Talk</b>   | <b>Faculty/Course Instructor</b>   |
|--------------------|---|--|--|
| 09:00 - 10:00 Hrs. | Satellite Meteorology and Atmospheric studies                 | L25: Space based observations for weather monitoring & prediction  | Dr. Atul Varma, Ex-GD,SAC/ISRO   |
| 10:00 - 11:00 Hrs. | Satellite based navigation and ground based augmentation      | L26: GNSS, DGPS, GAGAN, IRNSS (NavIC)  | Shri. Anil Kumar, Group Head, GTOPG, IIRS/ISRO                             |
| 11:00 - 11:30 Hrs. | Tea Break   |  |  |
| 11:30 - 12:30 Hrs. | Data Services, APIs and building Geoportals                   | L27: EO for disaster risk reduction (natural, climate change induced, Hydrological, environmental, geological), International frame work for disaster risk reduction | Dr. G Srinivas Rao, Ex-DD, NRSC/ISRO                                       |
| 12:30 - 13:30 Hrs. | Quiz  |  |  |
| 13:30 - 14:30 Hrs. | Lunch Break   |  |  |
| 14:30 - 15:30 Hrs. | Planetary Missions & Scientific implications                  | L28: Planetary missions overview, planetary surface observations from Indian missions  | Dr. Mamta Chauhan, Scientist, IIRS/ISRO                                    |
| 15:30 - 16:30 Hrs. | Industry talk - 3   | L29: Geospatial solutions in agriculture sector  | Dr. Siddhartha Khare, CEO & Co-Founder, Bhoomicam & Asst Prof, IIT Roorkee |
| 16:30 - 17:00 Hrs. | Tea Break   |  |  |
| 17:00 - 18:00 Hrs. | Industry Talk - 4   | L30: Building Geospatial data models leveraging Edge computing technology  | Shri. Vishesh Vatsal, CTO Hyspace  |
| 18:00 - 19:00 Hrs. | Feedback / Valedictory Session / Distribution of certificates |  |  |

## How to Apply

Interested applicants can submit their details along with course fee at [www.inspace.gov.in](http://www.inspace.gov.in).

## Who can Apply?

Academicians, Industry Executives, Graduates, Postgraduates and Researchers & Final year appearing graduate students

**Course Director: Shri Vinod Bothale, Resident Expert IN-SPACE**

**Prof. Sanjay Upadhyay, Head, CSST, IIT Roorkee**

**Course Coordinator: Dr. Vaibhav Gaur , Asst. Director, IN-SPACE,**

**Dr. Alka Rani & Dr. Sanchita Pal, Asst. Professor, CSST, IIT Roorkee**

**Commencement of Course: April 26, 2026**

**Course Duration: April 26 -May 01, 2026**

**Course Venue: GNEC IIT Roorkee, Plot No 20, Knowledge Park 2, Greater Noida, UP.**

**Course Fee : ₹ 15,000/- + 18% includes food charges (Non-refundable)**

**Accommodation: Accommodation at Course venue is available on request. Payment to be made at the time of check-out.**

**Course participants are advised to report at venue on April 26, 2026, before 14:00 Hrs.**



IN-SPACE Headquarters

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Available @   

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