

Winter School in Geospatial Science and Technology (Level 1: Spatial Thinking)

8 November to 28 November 2024



Supported by

Institute of Environment Education and
Research, Bharati Vidyapeeth (Deemed to be)
University, Pune, Maharashtra, India

National Geospatial Program,
Department of Science & Technology,
Government of India, New Delhi

Patron

Dr. Vivek Saoji, Vice-Chancellor
Bharati Vidyapeeth (Deemed to be) University, Pune, Maharashtra, India

Principal Investigator

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Co-Principal Investigator

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Summer/Winter School Capacity Building Program in Geospatial Science and Technology

Recently knowledge has been identified as the most important driving factor for India's sustainable economic growth. India has adopted a new information regime for sustainable economic growth through its 'Digital India' program to support good governance, sustainable development goals and empowerment of its citizens. Over the last three decades, the widespread adoption of geospatial technologies into various sectors have proven to be an effective enabler to meet these challenges. The capacity building program initiatives of the National Geospatial Program (NGP) erstwhile Natural Resource Data Management System (NRDMS) Department of Science and Technology, Government of India to develop national capacity for geospatial science and technology development through diverse programs in collaboration with various partner organizations. The three week program is being conducted at three levels, Level 1 (Standard), Level 1 (Spatial thinking) and Level 2. The objective of the program is to build knowledge and various levels of governance in collaboration with academia and user agencies.

Level 1 (Spatial Thinking) Summer / Winter School In Geospatial Science and Technology

The 21-day summer/winter school in Geospatial Science and Technology (Level 1– Spatial thinking) supported by the National Geospatial Program (NGP) of the Department of Science and Technology, Government of India focuses on developing knowledge and capacity building in geospatial technologies through the use of open source geospatial software.



About the National Geospatial Program of the Department of Science and Technology, Government of India

In the heart of India's technological advancement lies the National Geospatial Programme (NGP) of the Department of Science and Technology, Government of India. The Geospatial Capacity Building Program initiated in 2010 has over the years flourished, fostering capacities in geospatial science, technology, solutions, and entrepreneurship. Its transformative journey initiated with a modest ambition has evolved into a robust program, igniting minds and expanding horizons.

For a decade, the Geospatial Capacity Building Program under DST has been a cornerstone, conducting 166 comprehensive three-week programs conducted as Summer and Winter Schools in Geospatial Technologies at a basic (Level 1) and advanced level (Level 2). The 2024 cycle includes a 11 three week Level 1-(Standard) programs, 4 three week Level 1-(Spatial Thinking) programs, 8 Level 2-(Advanced) three week programs and 7 Geo Innovation Challenge Programs being conducted by various Universities across India selected through a stringent process by the DST.

The sessions at these programs comprise classroom, lab, fieldwork, and mini-projects. Central to this success is a structured curriculum and the advocacy of open-source software. The dedicated portal, <https://dst-iget.in>, is a reservoir of learning materials, connecting educators, professionals, and scientists, and catalyzing India's geospatial domain. The NGP-DST's geospatial capacity building program is coordinated nationally by the Bharati Vidyapeeth Deemed University, Department of Geoinformatics, Institute of Environment Education and Research, Pune.

The Institute of Environment Education and Research, Bharati Vidyapeeth Deemed University, Pune, Maharashtra, India is one of the selected institutions for conducting the Level 1– spatial thinking Program.



Bharati Vidyapeeth University, Pune

Bharati Vidyapeeth, the parent organization of this University is one of the largest educational organizations in the country, established over 60 years ago. It has 171 educational units under its umbrella including 67 Colleges and Institutes of conventional and professional disciplines. Bharati Vidyapeeth University commenced its functioning on 26th April, 1996. The University has eight campuses located in different cities including New Delhi. During the last 22 years the University has achieved higher pinnacles of academic excellence and has established its reputation to such an extent that it attracts students not only from various parts of India but also from abroad. At present, there are more than 850 overseas students from 47 countries on the rolls of constituent units of this University. The University 305 courses in its constituent units, of which, 108 are Post Graduate, 45 are Under Graduate and 55 Diploma level courses along with 12 Fellowship and 5 certificate courses. The University is a throbbing center of research activities and has Ph.D. programmes in 77 subjects and M.Phil in 3 subjects. The Bharati Vidyapeeth (Deemed to be) University is a multidisciplinary, multicampus University having 32 institutions imparting quality education in various disciplines. All programs of the University are approved by the University Grants Commission (UGC) and the respective statutory councils. The University has been re accredited for the third time with an 'A+' grade by the National Assessment and Accreditation Council (NAAC) in 2017. The UGC has accorded the 12B status (UGC Act 1956) to the University. The Ministry of Human Resource Development, Government of India has awarded 'A' category to the University in 2012 based on several parameters that include innovative programs, research and infrastructure facilities. The University has maintained its rank in the top hundred universities of India consistently since 2012 and is presently ranked at 62nd position by the National Institution Ranking Framework (NIRF) by the UGC for the year 2019.



The University has created excellent infrastructure for all its constituent units, including well structured spacious buildings, continuously updated laboratories and libraries and hostels with all the necessary amenities and facilities for both boys and girls. Visit us on: <https://www.bvuniversity.edu.in/>

Institute of Environment Education and Research

The Institute of Environment Education and Research, Bharati Vidyapeeth (Deemed to be University) (BVIEER) is unique educational and research institution. The distinctive characteristics of the BVIEER are its wide mandate of teaching, research and extension in the fields of environment sciences, geoinformatics and wildlife conservation which have been major thrusts of the Institute. The major achievements include its projects and programs that have led to influencing environment policy and implementation of environment education at school and college level along with strategies for Protected Area Management. The Institute was asked by the NRDMS, DST to set up a portal for capacity building in geo-spatial technologies that can be accessed from <http://dst-iget.in> The Institute actively collaborates with several international Universities and organizations and has instituted semester exchange programs and international internship programs. The faculty are well known National experts in their individual fields and this greatly enhances the teaching program.

The Institute has a major research program in both environment Science and Geoinformatics. The faculty undertake several consultancy projects at the behest of various organizations. The research projects are funded by various Government organizations such as the Ministry of Science and Technology, Department of Biotechnology, Ministry of Environment and Forests, Central Zoo Authority, Mahad Industrial Estate, etc.



The research done at the Institute is cutting edge and uses an interdisciplinary approach. It has completed more than 50 research projects on various aspects of conservation, wild-life management, environment education and geospatial technologies.



Institute of Environment Education and Research, Bharati Vidyapeeth (Deemed to be) University, Pune



Who can apply?

- Faculty of colleges and universities, state and central government officials,
- Personnel from research institutions
- School Teachers, School Principal and Vice—Principals, SCERT and NCERT officers, Academicians
- Research Scholars* (max 3 persons),
- NGOs registered with the DARPAN portal* (max 3 persons).

How to apply?

- Interested candidates should fill the online application form through the web link available on <http://dst-iget.in>.
- Selected candidates will be informed by mail.
- For any further queries after application write to dst.iget@bharativedyapeeth.edu or call on +91- 7559288803
- Address all queries regarding the program once selected to the *PI, Dr. Aravinth R, aravinth.raja@bharativedyapeeth.edu,6381968932*



Important Information

Last date for application: 15 September 2024

Dates of the program: 8 to 28 November, 2024

Mode of conduct: Offline

No. of seats: 25

Registration Fees: Nil

Principal Investigator: Dr. Aravinth R, Asst. Professor, Institute of Environment Education and Research, Bharati Vidyapeeth (Deemed to be) University, Pune, Maharashtra, India

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Co-Principal Investigator: Ms. Samruddhi Patwardhan, Program Officer, Institute of Environment Education and Research, Bharati Vidyapeeth (Deemed to be) University, Pune, Maharashtra

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Phone: 7722078880

For any queries contact: Dr. Aravinth R (PI), aravinth.raja@bharativedyapeeth.edu, 6381968932 and Ms. Samruddhi Patwardhan (Co-PI), samruddhi.patwardhan@bharativedyapeeth.edu, 7722078880

Address: Institute of Environment Education and Research, Bharati Vidyapeeth University, Katraj-Dhanakwadi, Pune 411 043



Grading and Certification

Certificate of participation will be awarded to each participant only after attending the full course.

Travel and Lodging

Each participant will be reimbursed with 3 AC train fare. Lodging and boarding on a double sharing basis will be provided by the host institution.

Infrastructure Facilities

Laboratory

The Institute has well equipped laboratories for both environment science and geoinformatics That includes state of the art software such as QGIS, ENVIMET, ArcGIS, ERDAS, ENVI, IDRISI and other ecological and environmental software and hardware.

Boarding and Lodging facilities

The Institute has a well equipped AC guest house on the campus with a dining hall. Participants can also use the serene environments of the Guest House for a relaxing walk or run during their free time.





Remote Sensing and GIS Lab



Classroom



Guest house



Guest House Room



Deputation Letter (Format) for DST Summer/Winter School/ Geoinnovation Program 2024-25

This is to state that Dr./Mr./Ms. _____ working at _____ (name of the institute) as _____ (Designation), since _____ (year) is being deputed/nominated to _____(program name in detail) from -----(date, month, year) to----- (date, month, year) . He/she will be relieved from his/her duties during this period.

Signature and Seal

Head of the Institute

**Program schedule for 21 Days Summer School in Geospatial Science and Technology
(Level 1-Spatial Thinking)**

**Conducted by: Institute of Environment Education and
Research, Bharati Vidyapeeth (Deemed to be) University, Pune, Maharashtra, India
8 November to 28 November 2024**

Day and Date	9.30 to 11.15 am	Tea Break	11.30 to 12.45 pm	Lunch Break	1.30 to 3.15 pm	Tea Break	3.30 to 5.30 pm
Day 1, 8 November, 2024	Inaugural Session		What, why, and How Spatial Thinking: What is spatial thinking and how its related to geospatial?? Dr Shamita Kumar	12.45 pm- 1.30 PM	Sustainable Development Goals: Not global but local: Understanding the SDGs Dr Shamita Kumar		Schools in localizing SDGs: Role of schools in localizing the SDGs throughspatial thinking: Case studies Ms. Samruddhi Patwardhan
Day 2 9 November, 2024	Maps in Everyday Life: Locating ourselves, understanding map scale, map features and symbology Dr. Aravinth R	11.30 to 11.45 am	Reeseeing: <i>How does spatial thinking impact our view of the world, in the past and present, andhelp us to predict the future? (History through maps)</i> Dr Shamita Kumar			Hands On: Introduction to Google Maps and Open StreetMaps Dr Aravinth R / Dr MadhurimaDey	3.30 to 3.45 pm

Day 3, 10 November, 2024	Anatomy of a map: What does it contain, use of colors, use of hierarchy, use of symbols, the underlying data Dr Aravinth R		Telling your story through maps: Paper maps to digital maps Dr Shamita Kumar		Hands-on: Creating your storymap Dr Madhurima Dey		Hands-on: Creating your story map Dr Madhurima Dey
Day 4, 11 November, 2024	3D to 2D maps: what changes? Understanding projections Dr Shamita Kumar		3D to 2D maps: what changes? Working with projections Dr Madhurima Dey		Defining location on a map: understanding latitude and longitude Dr Madhurima Dey		Satellites for location: How does it work? Introduction to use of location apps on mobile phones Dr Aravinth R
Day 5, 12 November, 2024	The eye in the sky: The story of satellites Dr Aravinth R		Case study: Journey with Echo the bat – understanding remote sensing, electromagnetic spectrum, light, radiation, color, habitat Dr Shamita Kumar		Hands on: pixels, spatial and spectral resolutions Mr Harshal Jayawant		Satellites in our lives: Applications of satellite imagery in everyday life Guest Lecture
Day 6, 13 November, 2024	How warm is my earth? Understanding temp change through the use of LANDSAT satellite images Dr Aravinth R	11.30 to 11.45 am	How polluted is my earth: understanding air pollution (SO ² and NO ²) through satellite images Dr Shamita Kumar	12.45 pm- 1.30 PM	Flooding in India: Satellites tell the story Dr Aravinth R	3.30 to 3.45 pm	How green is my city: Satellites for mapping vegetation Dr Shamita Kumar
Day 7, 14 November, 2024	BREAK DAY						
Day 8, 15 November, 2024	Tracking changes over time Introduction to Google Earth Dr Aravinth R		Mapping change in my village/city: Using timeline in Google Earth Ms. Samruddhi Patwardhan		Hands on: Preparing local maps: Using Google Plus codes to map (with case study) Ms. Samruddhi Patwardhan		Hands-on: Preparing local maps: Using Google Plus codes to map Ms. Samruddhi Patwardhan

<p>Day 9, 16 November, 2024</p>	<p>Hands on session into Bhuvan My maps – Contributing to nationalgeospatial building Dr Aravinth R</p>		<p>Hands on session into Bhuvan My maps – Contributing to national geospatial building Dr Aravinth R</p>		<p>Introduction to digital censusdata Ms. Samruddhi Patwardhan</p>		<p>Introduction to Landsatarchive Dr Madhurima Dey</p>
<p>Day 10, 17 November, 2024</p>	<p>Hands on Spatial thinking: Access to green space- analyzing data and tools used: Recognize the relationship between attributes and thematic maps and use of attributes of geographic features to identify spatial patterns on a thematic map Dr Shamita Kumar</p>		<p>Hands on Spatial thinking: Mapping the pandemic - analyzing data and tools used: Recognize the relationship between attributes and thematicmaps and use of attributes of geographic features to identify spatial patterns on a thematic map Dr Aravinth R</p>		<p>Hands on Spatial thinking: Mapping crime: Recognize the relationship between attributesand thematic maps and use of attributes of geographic features to identify spatial patterns on a thematic mapDr Aravinth R</p>		<p>Hands on Spatial thinking: Mapping my watershed: Recognize the relationshipbetween attributes and thematic maps and use of attributes of geographic features to identify spatialpatterns on a thematic map Dr Madhurima Dey</p>
<p>Day 11, 18 November, 2024</p>	<p>Hands on Spatial thinking: Climate change and rice production in India Dr Aravinth R</p>		<p>Hands on Spatial thinking: Recycling in sustainable smart citiesMs. Samruddhi Patwardhan</p>		<p>Hands on Spatial thinking: Howgreen is my roof? Dr Madhurima Dey</p>		<p>Hands on Spatial thinking: Exploring history of water management in Pune Ms. Samruddhi Patwardhan</p>
<p>Day 12, 19 November, 2024</p>	<p>Using Simple GI interfaces - -Tools for spatial outputs: Querying – How get information from existing data Dr Aravinth R</p>		<p>Using Simple GI interfaces -Tools for spatial outputs: Querying – How get information from existing data Dr Aravinth R</p>		<p>Using Simple GI interfaces - Tools for spatial outputs: Introducing vector and rasterdata querying Dr Madhurima Dey</p>		<p>Using Simple GI interfaces -Tools for spatial outputs: Introducing vector and raster data querying Dr Madhurima Dey</p>

Day 13, 20 November, 2024	Examining interrelationships - I Aravinth R	Examining interrelationships - How having different spatial datasets makes the map perspective better Aravinth R	Examining interrelationships training session using a case example on simple vector analysis tools such as buffers, unions, overlays Dr Sougata Sadhukhan	Examining interrelationships training session using D Dr Binaya Pattnaik
Day 14, 21 November, 2024	BREAK DAY			
Day 15, 22 November, 2024	Field work Dr Aravinth R / Ms. Samruddhi Patwardhan	Fieldwork Dr Aravinth R / Ms. Samruddhi Patwardhan	Fieldwork Dr Aravinth R / Ms. Samruddhi Patwardhan	Fieldwork Dr Aravinth R / Ms. Samruddhi Patwardhan
Day 16, 23 November, 2024	Tools for primary data collection: preparation of mobile-based tools	Tools for primary data collection: preparation of mobile-based tools	Secondary data collection and data evaluation: Researching sources	Secondary data collection and data evaluation: Researching sources
Day 17, 24 November, 2024	Project work - Data collection	Project work - Data collection	Project work - Data collection	Project work - Data collection

Day 18, 25 November, 2024	Project work - Data collection		Project work - Data collection		Extract new insight from the analysis		Extract new insight from the analysis
Day 19, 26 November, 2024	Extract new insight from the analysis		Extract new insight from the analysis		Extract new insight from the analysis		Extract new insight from the analysis
Day 20, 27 November, 2024	Project work – Writing Phase		Project work – Writing Phase		Project work – Writing Phase		Project work – Writing Phase
Day 21, 28 November, 2024	Presentation		Feedback session		Valedictory		

