

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

18 November to 7 December 2024



Organized by

**Amity University Uttar Pradesh (Auup),
Noida, Uttar Pradesh**



Supported by

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

Principal Investigator

Dr. Maya Kumari, Assistant Professor, Amity School of Natural Resources & Sustainable Development, Amity University, Noida, Uttar Pradesh India



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 Amity University, Noida, Uttar Pradesh, India is one of the selected institutions for conducting the Level 1– spatial thinking Program.



Amity University Uttar Pradesh (Auup), Noida, Uttar Pradesh

Amity University Uttar Pradesh (AUUP) sponsored by Ritnand Balved Education Foundation, New Delhi was established at Gautam Buddha Nagar in Uttar Pradesh under the Amity University Uttar Pradesh Act, 2005 (UP Act No. 11 of 2005), notified in the Uttar Pradesh Government Official Gazette No. 403/VII-VI(ka)/I/2005 dated 24th March, 2005. AUUP has been Accredited by NAAC with 'A' Grade. AUUP has been recognized as Scientific and Industrial Research Organization (SIRO) by Department of Scientific and Industrial Research (DSIR), Government of India. AUUP is actively engaged in Research and Development and has during these years received research grants from various government and private organizations within India and abroad. Amity is the leading group of private educational institutions in India, comprising of 11+ Universities, 150+ Institutions, 17 Schools and Preschools with more than 2,00,000 Students, 1000 Acres of Campuses and International campuses in London, Singapore, Dubai, New Jersey, California, Romania, Beijing, Nanjing and Mauritius.

About Natural Resource And Environmental Science At Amity

Natural Resource and Environmental Science (NRES) is a multifaceted academic discipline, offering rigorous teaching, research, and outreach programs at all educational levels. With a student-centric approach, NRES aims to mold future leaders in environmental science and natural resource management through challenging, collaborative, and interdisciplinary learning environments. NRES comprises six departments: Amity School of Natural Resources & Sustainable Development (ASNRSD), Amity Institute of Geoinformatics & Remote Sensing



(AIGIRS), Amity Institute of Environmental Sciences (AIES), Amity Institute of Forestry and Wildlife Sciences (AIWS), Amity Institute of Global Warming and Ecological Studies (AIGWES), and Amity Institute of Environmental Toxicology, Safety and Management (AIETSM). The educational portfolio includes three Bachelor of Science programs (Geoinformatics, Environmental Science, and Forestry) and various graduate programs, including M.Sc. and M. Tech. degrees, an MBA in Natural Resources & Sustainable Development, and doctoral studies.

Conceptualized in 2005, the **Amity School of Natural Resources & Sustainable Development (ASNRSD)** focuses on addressing natural resource and sustainable development challenges. It has evolved into a research-oriented institution, conducting seminars, training programs, and research projects. The department also has a number of MoUs with various national and state level institutes.

The **Amity Institute of Geo-Informatics and Remote Sensing (AIGIRS)** is an interdisciplinary centre at Amity University Uttar Pradesh, emphasizing the integration of technical, mathematical, computational, and visual knowledge in geoinformatics. Programs cover geodesy, photogrammetry, laser scanning, remote sensing, and geographic information technologies, providing a balance of theoretical and practical skills to develop academic, problem-solving, and analytical capabilities in students.





Amity University Uttar Pradesh (Auup), Noida, Uttar Pradesh

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. Maya Kumari*, mkumar10@amity.edu, 9873658891



Important Information

Last date for application: 15 October 2024

Dates of the program: 18 November to 7 December 2024

Mode of conduct: Offline

No. of seats: 25

Registration Fees: Nil

Principal Investigator: Dr. Maya Kumari, Assistant Professor, Amity School of Natural Resources & Sustainable Development, Amity University, Noida, Uttar Pradesh, India

Email: mkumar10@amity.edu

Phone: 9873658891

Co-Principal Investigator: Dr. Shefali Kashyap, Deputy Director, Amity Foundation for Science, Technology & Innovation Alliances (AFSTIA), Amity University, Noida, Uttar Pradesh, India

Email: skashyap1@amity.edu

Phone: 9871388227

For any queries contact: Dr. Maya Kumari, (Principal Investigator), mkumar10@amity.edu, 9873658891

Address: Amity School of Natural Resources & Sustainable Development, J 1 Block, Ground Floor, Amity University Uttar Pradesh, Sector 125, Noida – 201313, Uttar Pradesh

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

Amity University has state of the art infrastructure for Remote Sensing, Geographical Information Systems (GIS), Photogrammetry and GNSS. The laboratories are equipped with the latest version of GIS and image processing software. The Institute is equipped with high-speed internet connectivity and servers to cater to the requirements of researchers. The labs are also well-equipped with other resources, such as printers, scanners, and projectors.

Boarding and Lodging facilities

Amity University Guest House is an excellent accommodation that offers comfortable and well-equipped rooms, essential amenities, entertainment options and security measures. Its location within the university campus further adds to its appeal, making it a convenient choice for anyone visiting the university.





Classroom



GIS and Remote Sensing



Guest house



Guest House Room

Program schedule for 21 Days Summer School in Geospatial Science and Technology

(Level 1-Spatial Thinking)

Conducted by: Amity University Uttar Pradesh (Auup), Noida, Uttar Pradesh

18 November to 7 December 2024

Day and Date	Morning Session	Afternoon Session
	Week 1 Introduction to Spatial Analysis	
18/11/2024 Monday	Registration Inaugural Session Special session by Chief Guest	Introduction to Spatial Analysis <ul style="list-style-type: none"> Exploring basic spatial concepts and terminologies. Dr. Maya Kumari, ASNRSD, Amity University
19/11/2024 Tuesday	Spatial Perception and Visualization <ul style="list-style-type: none"> Developing skills in interpreting maps, charts, and spatial data. Dr. Varun Narayan Mishra, AIGIRS, Amity University	Spatial Perception and Visualization <ul style="list-style-type: none"> Techniques for improving spatial perception and mental rotation. Dr. Varun Narayan Mishra, AIGIRS, Amity University
20/11/2024 Wednesday	Spatial Relationships and Patterns <ul style="list-style-type: none"> Recognizing and analyzing spatial patterns in real-world scenarios. Dr. Maya Kumari, ASNRSD, Amity University	Guest Speaker Spatial Relationships and Patterns <ul style="list-style-type: none"> Identifying spatial relationships and their implications. Scientist Jayant Singhal, NRSC North, New Delhi
21/11/2024 Thursday	Spatial Data Sources and Tools <ul style="list-style-type: none"> Introduction to Geographic Information Systems (GIS) and Remote Sensing. Dr. Swati Sharma, AIGIRS, Amity University	Spatial Data Sources and Tools <ul style="list-style-type: none"> Hands-on experience with basic GIS operations and spatial data visualization. Dr. Swati Sharma, AIGIRS, Amity University
22/11/2024 Friday	Guest Speaker and Case study Guest Speaker: Prof P K Joshi, Professor, JNU, New Delhi	Hands-on experience with GIS software Dr. Dhanraj K., AIGIRS, Amity University

23/11/2024 Saturday	Hands-on experience with GIS software Dr. Dhanraj K., AIGIRS, Amity University	Practice session
24/11/2024 Sunday	Holiday	
Week 2: Applying Spatial Analysis and Problem solving		
25/11/2024 Monday	Spatial Analysis Techniques <ul style="list-style-type: none"> Exploring spatial analysis methods: buffering, overlay, interpolation, etc. Dr. S. S. Roy, AIGIRS, Amity University	Spatial Analysis Techniques <ul style="list-style-type: none"> Applying spatial analysis to solve real-world problems. Dr. S. S. Roy, AIGIRS, Amity University
26/11/2024 Tuesday	Geospatial Data Collection <ul style="list-style-type: none"> Field trip for hands-on experience in collecting spatial data using GPS and mobile mapping tools. Dr. Dhanraj K., AIGIRS, Amity University	Geospatial Data Collection <ul style="list-style-type: none"> Ethical considerations in geospatial data collection Dr. Dhanraj K., AIGIRS, Amity University
27/11/2024 Wednesday	Spatial Decision Making <ul style="list-style-type: none"> Understanding the role of spatial thinking in informed decision-making. Dr. Maya Kumari, ASNRSD, Amity University	Spatial Decision Making <ul style="list-style-type: none"> Case studies of successful spatially-informed decisions. Dr. Maya Kumari, ASNRSD, Amity University
28/11/2024 Thursday	Spatial Data Visualization <ul style="list-style-type: none"> Advanced techniques for creating compelling and informative spatial visualizations. Dr. Varun Narayan Mishra, AIGIRS, Amity University	Guest Speaker Spatial Data Visualization <ul style="list-style-type: none"> Using data visualization tools to convey spatial information effectively. Guest Speaker: Prof Kiranmay Sarma, Professor, GGSIPU, New Delhi
29/11/2024 Friday	Spatial Thinking Across Disciplines <ul style="list-style-type: none"> Applying spatial thinking in diverse fields (environmental science, urban planning, public health, etc.). Dr. Varun Narayan Mishra, AIGIRS, Amity University	. Spatial Thinking Across Disciplines <ul style="list-style-type: none"> Applying spatial thinking in diverse fields (Agriculture, forestry, Disaster, Geosciences etc.). Dr. Varun Narayan Mishra, AIGIRS, Amity University
30/11/2024 Saturday	Spatial Thinking in Policy and Planning <ul style="list-style-type: none"> Exploring how spatial thinking influences policy development and urban planning. Dr. Varun Narayan Mishra, AIGIRS, Amity University	Guest Speaker Spatial Thinking in Policy and Planning Guest speaker from a relevant government agency or planning department. Dr. Shivangi Somvanshi

		Director GKI, Geospatial World, Noida
01/12/2024 Sunday	Holiday	
	Week 3: Project Work and Presentation	
02/12/2024 Monday	Group Project Initiation <ul style="list-style-type: none"> Participants form groups and select a spatial issue to address. 	Group Project Initiation <ul style="list-style-type: none"> Planning the project scope, data requirements, and analysis methods.
03/12/2024 Tuesday	Group Project Work <ul style="list-style-type: none"> Participants work on their group projects, applying spatial thinking and analysis to solve the chosen spatial issue. 	Group Project Work <ul style="list-style-type: none"> Regular check-ins with mentors for guidance and support.
04/12/2024 Wednesday	Group Project Work <ul style="list-style-type: none"> Participants work on their group projects, applying spatial thinking and analysis to solve the chosen spatial issue. 	Group Project Work <ul style="list-style-type: none"> Regular check-ins with mentors for guidance and support.
05/12/2024 Thursday	Group Project Work <ul style="list-style-type: none"> Participants work on their group projects, applying spatial thinking and analysis to solve the chosen spatial issue. 	Group Project Work <ul style="list-style-type: none"> Regular check-ins with mentors for guidance and support.
06/12/2024 Friday	Presentation Skills Workshop <ul style="list-style-type: none"> Effective techniques for presenting complex spatial information to diverse audiences. Overcoming challenges in communicating spatial concepts. 	Group Project Presentation
07/12/2024 Saturday	Final Project Presentation and Closing <ul style="list-style-type: none"> Each group delivers a comprehensive presentation of their spatial analysis, insights, and recommendations. 	Valedictory <ul style="list-style-type: none"> * Dr. Sameer Saran, Dy General Manager (DGM) & Scientist/Engineer 'SG', Regional Remote Sensing Centre - North, NRSC/ISRO, New Delhi Representative for DST NGP

	Reflection on the acquired spatial thinking skills and their potential impact.	
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