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

18 November – 11 December 2024

Organized by

Department of Civil Engineering,
SNS College of Technology, Coimbatore,
Tamil Nadu, India

Supported by

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

Department of Science & Technology
Govt. of India

Principal Investigator

Dr. C.Gajendran, Dr. C.Gajendran, Professor & SeniorInnovator, Department of CivilEngineering, SNS College of Technology, Coimbatore, Tamilnadu, 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 SNS College of Technology, Coimbatore, Tamil Nadu, India is one of the selected institutions for conducting the Level 1– spatial thinking Program.

SNS Institutions, Coimbatore, Tamil Nadu

We started our journey in 1997 through Sri SNS Charitable Trust with a philanthropic outlook of serving the society in the fields of Education, Textiles, Software and several other allied Industries. Ever since the inception of Sri SNS Charitable Trust, we have been expanding its wide spectrum of educational streams from pre-school to advanced levels of graduate and post graduate programmes in Arts, Science, Education, Management, Engineering, Pharmacy, Allied health sciences, Nursing, Physiotherapy and Research centers.

SNS College of Technology, Coimbatore

SNS College of Technology, Coimbatore is an excelling institution in the state committed to producing engineers with high calibre and professionalism by accelerating Engineering and Technological education under one roof. The college was established in 2002 by Sri SNS Charitable Trust with a high Mission and noble thought of educating the needy. The campus is well-structured in a beautiful environment, with the best infrastructural facilities. The college offers 13 UG, 6 PG and 5 Ph.D / Research Programs in the leading fields of Engineering / Technology and Management.

Department of Civil Engineering

The Department of Civil Engineering was established in the year 2009. The Department is provided with industry-ready Infrastructural facilities and well-equipped Laboratories. The Laboratories include Concrete and Highway, Strength of materials, GIS and remote Sensing, Hydraulics and Fluid Machinery, Soil Mechanics, Environmental Engineering, Survey and Computer. The department has 70 computers with 20 Mbps internet connectivity.

The Department offers B.E. Civil Engineering degree programme and M.E. Structural Engineering programme. The undergraduate programme (B.E.) in Civil Engineering was started in the year 2009-10 with a sanctioned intake of 72. Based on its expertise, the department was permitted to offer a graduate programme (M.E.) in Structural Engineering from 2013-14 onwards with a sanctioned intake of 18 students. Considering the ever-growing demand of Civil Engineers and growing emphasis on planning, a new and unique undergraduate programme, B.E – Civil Engineering and Planning was introduced from the year 2016-17 onwards.

SNS Institutions, Coimbatore, Tamil Nadu

About the Level 1-spatial thinking Program being conducted by SNS Institutions, Coimbatore, Tamil Nadu India ?

In a world where spatial intelligence is increasingly vital, our program shines as a beacon of professional excellence. Through an immersive experience in advanced spatial intelligence methodologies and practical applications, participants are equipped with indispensable skills demanded by today's competitive landscape. At the heart of our program lies a meticulously crafted curriculum, developed in collaboration with industry-leading experts. Participants delve into cutting- edge concepts in spatial analysis, Geographic Information Systems (GIS), remote sensing, and related fields, ensuring they acquire the expertise needed to thrive in their professions. Led by distinguished faculty members with extensive research and industry experience, our emphasis on hands-on learning and practical problem-solving empowers participants to translate theoretical knowledge into real-world solutions with confidence and precision. Access to state-of-the-art facilities further enhances their learning journey. Whether you're a seasoned professional seeking to enhance your skillset or a budding researcher eager to explore the forefront of spatial intelligence, SNS College of Technology's Spatial Thinking Winter School provides a platform for unparalleled professional development. Seize this exclusive opportunity to elevate your   career prospects and become a driving force in the evolving field of spatial intelligence.

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@bharatividyapeeth.edu or call on +91- 7559288803

- Address all queries regarding the program once selected to the PI, *Dr. C.Gajendran, cgajendran@gmail.com; gajendran.c.ihub@snsgroups.com, 94433 68980, +91-20-24375684/24362155*

Important Information

Last date for application: **30 September 2024**
Dates of the program: 18 November 2024 to 11 December 2024

Mode of conduct: Offline

No. of seats: 25
Registration Fees: Nil

Principal Investigator: Dr. C.Gajendran, Professor & Senior Innovator, Department of Civil Engineering, SNS College of Technology, Coimbatore, Tamilnadu, India
Email: cgajendran@gmail.com; gajendran.c.ihub@snsgroups.com,
Phone: 94433 68980

For any queries contact: Dr. C.Gajendran.,(Principal Investigator) cgajendran@gmail.com; gajendran.c.ihub@snsgroups.com,

Address: Department of Civil Engineering, SNS College of Technology, SNS Kalvi Nagar, Sathy Main Road, NH-209, Vazhiyampalayam, Saravanampatti, Coimbatore, Tamil Nadu 641035

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 Department has a full-fledged common Computer Laboratory, Library and high speed internet & wi-fi connection. In addition it has well equipped laboratories.

Boarding and Lodging facilities

The institute has three guesthouse which can accommodate more than 50 people in both AC and Non AC rooms. In addition to this, and international hostel which provides an accommodation for more than 25 people
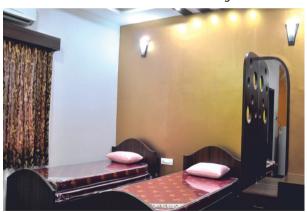
Classroom

GIS and Remote Sensing

Guest house

Guest House Room

Program schedule for 21 Days Winter School in Geospatial Science and Technology
(Level 1-Spatial Thinking)
Venue: SNS College of Technology, Coimbatore, Tamil Nadu
18 November 2024 to 11 December 2024

DATE / DAY	Morning Session (Theory) Time: 09:30 – 11: 00 AM	Tea Break Time: 11:00- 11:20 AM	Morning Session (Theory) Time: 11:20 AM– 1:00 PM	Lunch Break: 01:00 – 02:00 PM	Afternoon Session: Lab / Field Time: 02:00 PM – 4:30 PM (Tea Break : 3:15 PM – 3:30 PM)
Day-1 18.11.2024 Monday	Registration and inauguration Chief Guest & DST Representative Plenary talk by (Expert / Guest)		Understanding spatial thinking: Spatial Intelligence, Spatial Concepts Mrs. Geetha, Asst Professor, SNS College of Engineering.		Mental mapping activity: Importance of spatial thinking in various disciplines, & Cognitive processes involved in spatial reasoning Mr. Pradeep, SNSiHub Project Coordinator & Team
Day-2 19.11.2024 Tuesday	The power of maps: Maps as effective media for spatial thinking. Dr. C. Gajendran, Professor SNS College of Technology		Setting up the mapping framework : Basics on map making Dr. C. Gajendran, Professor SNS College of Technology		Google Earth: Understanding the Fusion of Geographic Elements into Points, Networks, and Regions; Exploring Spatial Structures and Patterns Dr. C. Gajendran, Professor SNS College of Technology & Team
Day-3 20.11.2024 Wednesday	Maps for communication and decision-making Ms. Priya, Asst. Professor, SNS College of Technology		Utilizing spatial thinking: Examining Patterns through Basic Cartography Ms. Priya, Asst. Professor, SNS College of Technology		Roundtable discussions: space, scale, pattern, and distance. Dr. C. Gajendran, Professor SNS College of Technology & Team
Day-4 21.11.2024 Thursday	Introduction to Spatial Thinking and SDGs		Spatial Reasoning in the field of Indian Geology		Roundtable Conversations: Exploring the Components of Sustainable Development Goals (SDGs) for a Sustainable World : A

		Tea Break Time: 11:00- 11:20 AM		Lunch Break: 01:00 – 02:00 PM	
	Dr. C. Gajendran, Professor SNS College of Technology		Dr. Kumar, AP(SG), Government College of Engineering		spatial thinking approach Dr. C. Gajendran, Professor SNS College of Technology & Team
Day-5 22.11.2024 Friday	Spatial Data Models and Representations Mr. Satyanaam, Head GIS, SUEZ		Overview of GIS and its components Mr. Satyanaam, Head GIS, SUEZ		Exploring Spatial Cognition through Geo Spatial Tool (QGIS) Mr. Satyanaam, Head GIS, SUEZ
Day-6 23.11.2024 Saturday	*Field Visit: Nilgiris Forest -Field data collection and mapping*				
24.11.2024 Sunday					
Day-7 25.11.2024 Monday	Spatio-temporal analysis of health hazard and malcunctions Dr. Sangeetha, Professor, SNSCT		Introduction to Epicollect 5 App Dr. C. Gajendran, Professor SNS College of Technology		Field data collection : Data Collection using Epicollect 5, Data preprocessing and Integration with spatial tool kits. Dr. C. Gajendran, Professor SNS College of Technology & Team
ay-8 26.11.2024 Tuesday	Spatial Thinking in Social Sciences. Ms. Priya, SNSCT		Role of spatial thinking in architecture and urban planning Dr. Muthusamy, TNIUS		Creating thematic maps using GIS. Dr. C. Gajendran, SNSCT and Team
Day-9 27.11.2024 Wednesday	Spatial thinking approach in urban infrastructure management Dr. N.Muthusamy, Faculty, Tamil Nadu Institute of Urban Studies		Utilizing Spatial Reasoning in Property Tax Cartography, Dr. N.Muthusamy, Faculty, Tamil Nadu Institute of Urban Studies		Utilizing Spatial Reasoning in Field Data Collection Using GPS, Total Station, and Drones. Mr. Praveen, Director, Digital Land Surveying
Day-10 28.11.2024 Thursday	Introduction to Design thinking. Mrs. Sajitha, Coordinator, SNS iHUB		Group Activity: Design Thinking Process. Mr. Pradeep, SNS iHub Project Coordinator & Team		Practical Exercise :Design thinking workshop Mrs. Sajitha, Coordinator, SNS iHUB & Team

		Tea Break Time: 11:00- 11:20 AM		Lunch Break: 01:00 – 02:00 PM	
Day-11 29.11.2024 Friday	Techniques of interpreting spatial data. Dr. Gowtham, Government Arts College.		Spatial Thinking in Smart City Project Missions Mr. P. Gopalakrishnan, Team Leader / IE cum PMC, Coimbatore 24x7 Water Supply**.**		Role-playing scenarios to demonstrate decision-making. Mr. Pradeep, SNSCE and Team
Day-12 30.11.2024 Saturday	Field Visit : Nilgiris Forest				
31.11.2024 Sunday					
Day-13 02.12.2024 Monday	Human-Centered Design Approach Mrs. Sajitha, Coordinator, SNS iHUB		Prototyping and Iterative Design Mr. Pradeep, SNSiHub Project Coordinator		Project Work: Prototype Development and Testing Mr. Pradeep, SNSiHub Project Coordinator and Team
Day-14 03.12.2024 Tuesday	Usability Testing and Feedback Mrs. Geetha, SNSCE		Iterative Design Refinement Mr. Pradeep, SNSCE		Group Project: User-Centric Design Approach Mrs. Geetha, SNSCE and Team
Day-15 04.12.2024 Wednesday	Spatial Data Privacy and Ethics Dr. Kanmani, SNSCT		Sustainable Hydrogeological Assessment Through Geo-Spatial Analysis Mr. A. Siva kumar, Environmental and Geo Spatial Solutions, Country Manager		Roundtable discussions: Ethical Considerations Ms. Geetha, SNSCE and Team
Day-16 05.12.2024 Thursday	Spatially Informed Groundwater Management Dr. M. Senthilkumar, Central Ground Water Board Ministry of Jal Shakti		Groundwater Potential Mapping: A Spatial Thinking Approach with Machine Learning Dr. Iswar chandra Das, NRSC, Hydrabad		Watershed deletion using Geo Spatial Tools Dr. C. Gajendran and Team

Day-17 06.12.2024 **Friday**	Spatial Interactions: Nearest neighbor analysis and gravity models Dr.C .Gajendran, SNSCT		Case study discussion on spatial interactions Dr. C. Gajendran, SNSCT and Team		Group Activity : Spatial Analysis Tools and Techniques Dr. C. Gajendran, SNSCT and Team	
Day-18 07.12.2024 **Saturday**	Facility Visit: Tamil Nadu Agriculture University - GIS and Remotes Sensing Lab					
08.12.2024 Sunday						
Day-19 09.12.2024 **Monday**	Opportunities and Challenges in India's Urban Water Supply System projects Mr. Amit Neogi , SUEZ	Tea Break Time: 11:00- 11:20 AM	Analyzing environmental data to identify conservation areas Dr. Gowtham, Head of Geology, Government Arts College	Lunch Break: 01:00 – 02:00 PM	Tools and Techniques for environmental data handling in Geospatial Techniques. Dr. Gowtham, Head of Geology, Government Arts College	
Day-20 10.12.2024 **Tuesday**	Introduction to Final Presentations Dr. C. Gajendran, SNSCT and Team		Capstone Project Presentation: Practice Presentations Dr. C. Gajendran, SNSCT and Team		Capstone Project Presentation: Practice Presentations Dr. C. Gajendran, SNSCT and Team	
Day-21 11.12.2024 **Wednesday**	Capstone Project Presentation: Practice Presentations Dr. C. Gajendran, SNSCT anTeam		Concluding Discussion and Key Takeaways Dr. C. Gajendran, SNSCT and Team		Valedictory Interaction and feedback Dr. C. Gajendran, SNSCT and Team	