



Department of Science & Technology
Govt. of India

Summer School In Geospatial Science and Technology (Level 2)

**Roles and methods of Geointelligence to achieve
tangible UN Sustainable Development Goals**

18 April to 9 May, 2022

At

**Symbiosis Institute of Geoinformatics, Symbiosis International (Deemed)
University, Pune, Maharashtra, India**

Organized by

Symbiosis Institute of Geoinformatics,
Symbiosis International (Deemed)
University, Pune, Maharashtra, India

Supported by

National Geospatial Program,
Department of Science and Technol-
ogy, Government of India, New Delhi

Principal Investigator

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Co-Principal Investigator

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Pune

Symbiosis International (Deemed University), Pune

Symbiosis International Deemed University is a Category-I University of India declared by University Grant Commission India and is ranked under top 50 universities in India. The University has MOU's of collaboration with several renowned universities of the world and encourages students and faculty to participate in its programmes. Visit us on: <https://siu.edu.in/>

Symbiosis Institute of Geoinformatics, SIU

Symbiosis Institute of Geoinformatics (SIG) is the constituent of Symbiosis International Deemed University. SIG was launched in 2004, with a vision to create a trained human resource to meet future industry and society demands of this developing technology and the welfare of the society at large. In the past ten years, a number of mile stones have been achieved, with a warm hearted response of the industry and national and international collaborations in areas of national importance. With multiple disciplines, research and development, SIG has the potential to become a Centre of Excellence for Geo-spatial technology and also train manpower, provide technical knowledge and nurture entrepreneurship to assist the younger generation in the application of GIS in national and international projects. Symbiosis Institute of Geoinformatics is the first education institute from India to become a Data analysis node (DAN) member of Sentinel Asia. Visit us on: <https://sig.ac.in/>

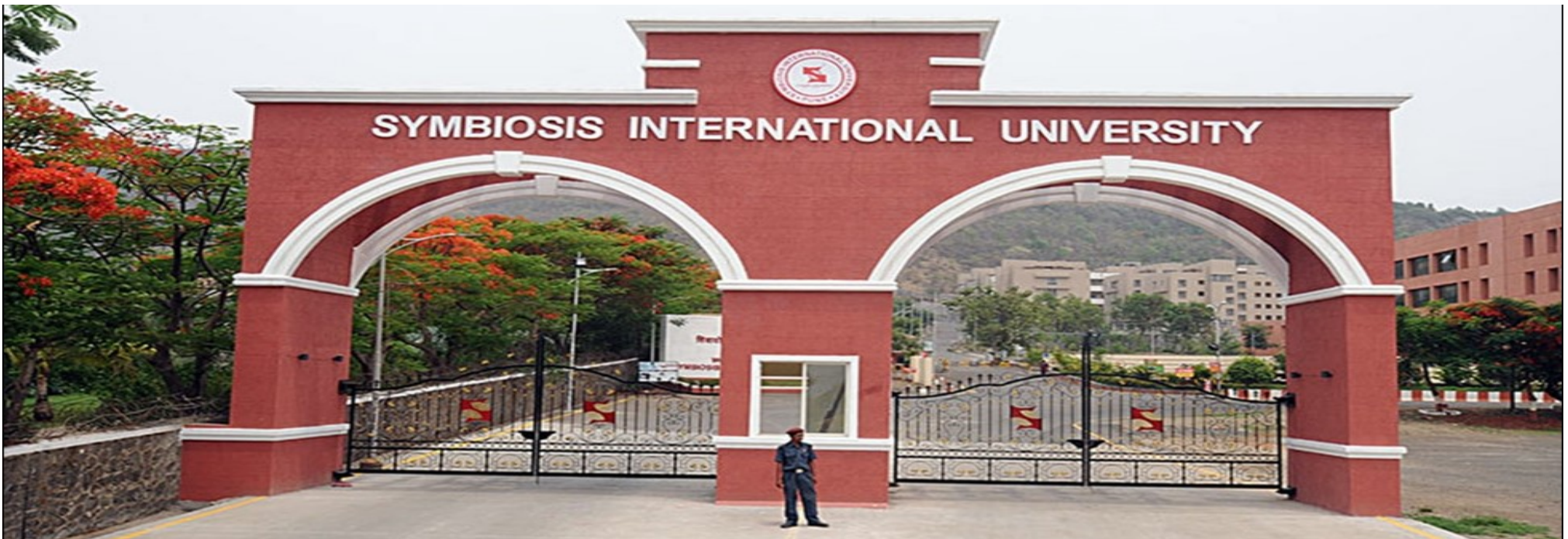


Fig 1. Symbiosis International (Deemed University), Pune

What is the Summer/Winter School (Level 2) 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 adaptation capacity of geospatial science and technology at across the country. The objective of the program is to build knowledge and various levels of governance in collaboration with academia and user agencies. The three week program is being conducted at two levels-Level 1 and Level 2. The 21-day summer/winter school in Geospatial Science and Technology (Level 2) supported by the Natural Resource Data Management System of the Department of Science and Technology, Government of India focuses on developing knowledge and capacity building in geospatial technologies through the use of geospatial software.

Level 2 Summer / Winter School In Geospatial Science and Technology

This three week program is a theme specific advanced training being implemented by eight institutions across the country. A one week online refresher session will be held prior to the commencement of the three week program.

The theme of the program: Roles and methods of Geointelligence to achieve tangible UN Sustainable Development Goals

Who can apply?

Faculty members, scientists, technologists, researchers from academia, national institutions of research, smart city cells, municipal corporations and other government departments, personnel from non government organizations are eligible to apply. Only 2-3 seats are reserved for research scholars. Only candidates who have a high degree of experience with geospatial technologies should apply for these advanced programs. **No basics will be covered in the Level 2 program. Candidates who have no knowledge of geospatial technologies should apply for the Level 1 program.**

How to apply?

- Interested candidates should fill the online application form through the weblink available on <http://dst-iget.in> under Summer School In GST (2021–2023)
- For any further queries write to dst-iget@bviier.edu.in or call on +91-20-24375684/24362155.
- Address all queries regarding the program to the PI through email

Important Information

Last date for registration : 15 March 2022

Dates of the program: 18 April to 9 May, 2022

Mode of conduct: Offline (According to the situation of Pandemic the mode of conducting the program will be changed to ONLINE)

No. of seats: 25

Registration Fees: Nil

Principal Investigator: Prof. (Dr.) T. P. Singh, Director, Symbiosis Institute of Geoinformatics, Symbiosis International (Deemed University), Pune, Maharashtra

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Co-Principal Investigator: Dr. Sandipan Das , Assistant Professor, Symbiosis Institute of Geoinformatics, Symbiosis International (Deemed University), Pune, Maharashtra

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For any queries contact:

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- Dr. Sandipan Das, (Co– Principal Investigator), sandipan@sig.ac.in, 9503001027

Address: Symbiosis Institute of Geoinformatics, Symbiosis International (Deemed) University, 5th and 6th Floor, Atur Centre, Gokhale Cross Road, Model Colony, Pune –, 411016, Maharashtra

Grading and Certification: Grading and Certification Participants will be assessed based on assignments completed during the course, a mini project that they are expected to complete, active participation during the training program as well as attendance.

Note: In case the program is conducted online due to COVID 19 restrictions, participants must ensure that they have a laptop and a strong internet connection.

Infrastructure at Symbiosis Institute of Geoinformatics

Lab

SIG 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, servers to cater to the requirement of researchers. SIG is working on different national level projects on disaster management, climate change and infrastructure development.

Guest House

SIG campus has well-furnished guest house facility to provide accommodation to the guests and delegates visiting SIG.



Fig2. Symbiosis Institute of Geoinformatics building



Fig 3. Classroom



Fig 4: GIS & RS Lab



Fig 5: Photogrammetry Lab



Fig 6: Guest House

Program schedule for 21 Days Summer School in Geospatial Science and Technology (Level 2)

18 April to 9 May, 2022

Roles and methods of Geointelligence to achieve tangible UN Sustainable Development Goals

A. One week Self Study Module

Day & Date	Theory if any and hands on
12/4/2022	Basics of GIS
13/4/2022	Basics of remote sensing
14/4/2022	Satellite Image processing Techniques
15/4/2022	Introduction to R programming
16/4/2022	Introduction to Python programming
17/4/2022	Sunday

B. Three Week Schedule

Date, Day	Theme	Time	Topic
18/4/2022, Monday	Inauguration	Morning Session (10.00-13.00 hrs)	Registration INAUGURATION Special. Lecture
		LUNCH 13:00 - 14:00 hr	
		Afternoon Session (14.00-17.00 hrs)	Special. Lecture
19/4/2022, Tuesday	No Poverty	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Agriculture & impact on socioeconomic development • Drought assessment & monitoring
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Development of drought monitoring system to understand economic loss.
20/4/2022, Wednesday	Zero Hunger	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Introduction to technology for agriculture productivity improvement • Impact of extreme events on crop yield & production
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Crop mapping, Crop suitability mapping, Crop acreage and yield estimation using remote sensing and GIS
21/4/2022, Thursday	Zero Hunger	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Crop Yield Prediction using Geointelligent Technique
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Crop Health Monitoring (Crop disease Identification) using Geospatial Techniques
22/4/2022, Friday	Good Health and Well being	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Introduction to public health • Geographical Approaches to Health and Disease
		LUNCH 13:00 - 14:00 hr	

		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Geovisualization of child & infant mortality • Identification of disease hotspots
23/4/2022, Saturday	Clean Water and Sanitation	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Water Resource Management • Accessibility of clean water • Groundwater resources
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Measuring domestic urban water security • GIS mapping of groundwater development
24/4/2022, Sunday	Holiday/Practice session		
25/4/2022, Monday	Clean Water and Sanitation	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Watershed Management • Sanitation and water quality
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Watershed analysis
26/4/2022, Tuesday	Affordable and Clean Energy	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Overview of Clean energy • GIS Application for Wind Energy & solar energy potential assessment
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Solar and Wind Energy assessment modelling
27/4/2022, Wednesday	Sustainable Cities and Communities	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Overview of Sustainable Urban Planning • Smart City Concept & sustainability
		LUNCH 13:00 - 14:00 hr	
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Urban sprawl analysis through remote sensing & GIS
28/4/2022, Thursday	Sustainable Cities and Communities	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Municipal Solid waste management • Understanding heat island & effect on urban environment

	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • GIS Based Mapping and Analysis of Municipal Solid Waste
29/4/2022, Friday	Climate action	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Introduction to climate change and extreme events • Implications of global climate change on water resources
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Quality check & Preparation of data for hydrological studies
30/4/2022, Saturday	Climate action	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Disaster risk reduction & SENDAI framework • Implication of climate change on snow cover & glacier mass balance variation
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Change detection in snow cover & glacial area using satellite data
1/5/2022, Sunday	Holiday/Practice session		
2/5/2022, Monday	Life on Land	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Forest cover assessment: Broad approach • Biodiversity conservation & geospatial technology
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Forest cover mapping & change detection using Geo Intelligence
3/5/2022, Tuesday	Mini Project Work	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
4/5/2022, Wednesday	Mini Project Work	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work

5/5/2022, Thursday	Mini Project Work	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
6/5/2022, Friday	Mini Project Work	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Mini Project Work
7/5/2022, Saturday	Mini Project work	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Mini Project work
	LUNCH 13:00 - 14:00 hr		
		Lab Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Mini Project work
8/5/2022, Sunday	Holiday/Practice session		
9/5/2022, Monday	Evaluation	Morning Session (10.00-13.00 hrs)	<ul style="list-style-type: none"> • Presentation and submission of mini project • Feedback
	LUNCH 13:00 - 14:00 hr		
		Afternoon Session (14.00-17.00 hrs)	<ul style="list-style-type: none"> • Valedictory Function