

Certificate course (online) in Geospatial Techniques for Environmental Modelling

July – August 2024

GIS based technologies offer wide scale applicability in different analytical processes relevant for Urban Planning, Landscape Planning, Disaster Relief Management and Cost analysis etc. Software such as ArcMap and QGIS offer a spatial and scientifically accurate analysis for such issues. This online course is designed to introduce the participants with advanced concepts of Geospatial Technology, its usability and its techniques for assessing Environmental issues.

Who can attend:

The course is open for Students, Professionals, Practitioners with keen interest in Geospatial Technologies. Prior knowledge of ArcMap and QGIS or familiarity with the user interface and a computer system with installed software is a prerequisite.

Fees and Registration:

The course fee is Rs. 1000 per person (INR one thousand only)
To Register, please complete the details on the form below:
https://docs.google.com/forms/d/1duGZRgoBtNyrCJwrtcSEkoDPeB_4JFhhQbFjSUh5l5k/edit
Also available at www.spabhupal.ac.in

Programme Schedule:

The course will be conducted through a series of online lectures and hands on exercises on 6 weekends/Saturdays in July and August 2024. Detailed Schedule will be available soon.

List of topics:

- Introduction to ArcGIS Pro
- Urban Climate Modeling
- Hydrology, Contours, Basin and Watershed
- Spatial Regression, Auto correlation
- Multivariate and Spatial clustering
- Model builder, GUI in GIS
- ArcEngine
- Open data sources, Big Data, Machine Learning
- Data visualization, GeoAI
- Advanced tools in QGIS

Co-ordinator:

Mrunmayi Wadwekar
Assistant Professor,
Dept. of Environmental Planning
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SPAB R AND D



4725201000021@cnrb

QR Code for Payment

योजना एवं वास्तुकला विद्यालय, भोपाल

राष्ट्रीय महत्व का संस्थान, शिक्षा मंत्रालय, भारत सरकार

School of Planning and Architecture, Bhopal

An Institute of National Importance, Ministry of Education, Government of India

Organised by:

Department of Environmental Planning
and
Centre for Geoinformatics, SPA Bhopal

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Anugrah Nagaich
MANIT Bhopal
Geospatial Analysis,
Machine Learning and
AI



Dr. Kshama Gupta
IIRS Dehradun
Urban Climate
Modelling, Urban
Green Spaces



Dr. Surabhi Mehrotra
MANIT Bhopal
Urban climate, Spatial
Analytics, Urban
Informatics



Vinaya Thakur
ESRI India
GIS Solutions, Data
Visualizations



Dr. Vaibhav Kumar
IISER Bhopal
Geospatial Artificial
Intelligence (GeoAI);
3D GIS



Dr. Anurag Bagade
SPA Vijayawada
GIS Technologies and
Spatial Planning, GUI in
GIS



Dr. Shailesh Chaure
**Holkar Science College,
Indore**
Geological Data
Analysis, WebGIS, QGIS



Dr. Natraj Kranthi
SPA Bhopal
Geospatial
modelling & urban
planning
applications



Dr. Rama Pandey
SPA Bhopal
Socio-ecological and
Climate Change
Resilience



Dr. Kakoli Saha
SPA Bhopal
Application of GIS &
Remote Sensing for
meso scale landforms



**Ms. Mrunmayi
Wadwekar**
SPA Bhopal
GIS Techniques for
Spatial Analytics



Dr. B.S.P.C. Kishore
SPA Bhopal
GIS, Hyperspectral
and Microwave
Remote Sensing



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Geospatial Techniques for Environmental Modelling

Tentative Schedule

Day I - 06/07/2024

Introductory Lectures

Session	Topic	Speaker	Time
	Welcome Address	Dr. Kailash Rao, Director, SPA Bhopal	10:30 AM - 11:00 AM
	Inaugural Session	Dr. N R Mandal	11:00 AM - 11:15 AM
	Overview of the Course	Ms. Mrunmayi Wadwekar	11:15 AM - 11:30 AM
Lecture 1	Current issues of Global and Urban Environments	Dr. Rama Pandey	11:30 AM - 12:30 PM
	Break		
Lecture 2	Application of GIS in Environmental Modelling	Dr. Kakoli Saha	1:00 PM - 2:00 PM
Lecture 3	Introduction to ArcGIS Pro	Ms. Vinaya Thakur, ESRI	2:00 PM - 3:00 PM
Quiz		Ms. Mrunmayi Wadwekar	Online

Day II - 13/07/2024

Urban Climate and Hydrology

Session	Topic	Speaker	
Lecture 1	Urban Climate Modeling	Dr. Kshama Gupta, IIRS	11:00 AM - 12:00 PM
Lecture 2	3D City Modelling	Dr. Kshama Gupta, IIRS	12:00 PM - 1:00 PM
	Break		
Lecture 3	Geospatial Analysis through GeoAI	Dr. Natraj Kranthi	1:30 PM - 2:30 PM
Lecture 4	Remote Sensing and GIS Applications in Hydrology	Ms. Mrunmayi Wadwekar	2:30 PM - 3:30 PM
Assignment	Watershed, Basin delineation	Ms. Mrunmayi Wadwekar	Hands on Exercise to be submitted as per schedule

Day III - 20/07/2024

Land dynamics and Networks

Session	Topic	Speaker	
Lecture 1	Concepts of Spatial Analytics	Ms. Mrunmayi Wadwekar	11:00 AM - 12:00 PM

Lecture 2	Data Sources & Machine Learning based Applications in Geospatial Analysis	Prof. Anugrah Nagaich, MANIT Bhopal	12:00 PM - 1:00 PM
	Break		
Lecture 3	Spatial Regression, Auto correlation	Dr. Surabhi Mehrotra, MANIT Bhopal	1:30 PM - 2:30 PM
Lecture 4	Multivariate and Spatial clustering	Dr. Surabhi Mehrotra, MANIT Bhopal	2:30 PM - 3:30 PM
Assignment	Hotspot Analysis	Dr. B.S.P.C. Kishore	Hands on Exercise to be submitted as per schedule

Day IV - 27/07/2024

Data sources, Data creation and GUI			
Session	Topic	Speaker	
Lecture 1	Environmental Application of Geospatial Techniques	Dr. Natraj Kranthi	11:00 AM - 12:00 PM
Lecture 2	Microwave Remote Sensing	Dr. B.S.P.C. Kishore	12:00 PM - 1:00 PM
	Break		
Lecture 3	Model builder, GUI in GIS	Dr. Anurag Bagade, SPA Vijaywada	1:30 PM - 2:30 PM
Lecture 4	Areal Interpolation - Kriging, IDW	Ms. Mrunmayi Wadwekar	2:30 PM - 3:30 PM
Assignment	Thermal Analysis - LST	Dr. B.S.P.C. Kishore/ Ms. Mrunmayi Wadwekar	Hands on Exercise to be submitted as per schedule

Day V - 03/08/2024

QGIS			
Session	Topic	Speaker	
Lecture 1	Data visualization, Data Mapping tools and techniques, GeoAI	Prof. Vaibhav Kumar, IISER Bhopal	11:00 AM - 12:00 PM
Lecture 2	Terrain Analysis and Spatial Analysis in QGIS	Dr. Kakoli Saha	12:00 PM - 1:00 PM
	Break		
Lecture 3	Advanced QGIS	Dr. Shailesh Chaure, Holkar Science College, Indore	1:30 PM - 2:30 PM
Lecture 4	Advanced QGIS	Dr. Shailesh Chaure, Holkar Science College, Indore	2:30 PM - 3:30 PM

	QGIS exercise	Dr. Kakoli Saha	Hands on Exercise to be submitted as per schedule
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Day VI - 10/08/2024			
Concluding Session			
Session	Topic	Speaker	
	Presentation by Participants		11:00 AM - 2:00 PM
	Concluding Remarks	Dr. Rama Pandey	2:00 PM - 2:30 PM
	Valedictory and Vote of Thanks	Ms. Mrunmayi Wadwekar	2:30 PM - 3:00 PM
Notes			
Attendance in all sessions is mandatory			
All assignments/quizzes are marked and are to be submitted within the stipulated time.			
Data for hands on exercise and Tutorials will be provided by SPAB			
Some of the sessions maybe rescheduled in unforeseen circumstances.			