

A grayscale background image showing three students in a computer lab. Two students are seated at a desk with laptops, looking at a map on the screen. A third student stands behind them, pointing at the laptop. The lab has large windows and modern furniture.

CERTIFICATE PROGRAM

Introduction to Geographic Information System

3rd to 24th June 2023

CEPT PROFESSIONAL PROGRAMS

CEPT Professional Programs (CPP) aims to bridge the gap between academics, practice, policy-making, and implementation through short certificate programs. The mission of CPP is to support individual and organizational learning by creating opportunities to acquire new skills and capabilities, thus allowing professionals to stay relevant in the current knowledge based global context. It will achieve this by offering professional development, continuing education, and up-skilling opportunities for professionals and in-service persons across disciplines concerned with urban development and the built habitat.

CPP draws from the expertise and capacity of the accomplished faculty at CEPT University, enhanced further by experts and practitioners from the field. Its programmes are built on deep research, vast consultancy projects and innovative pedagogies. CPP offers a repertoire of short programs and topic focused programs across disciplines of architecture, design, planning, and management with immersive learning approaches combining interactive lectures, case studies, and peer-to-peer exchanges.

ABOUT THE PROGRAM

Geographic Information Systems (GIS) is a critical tool for urban development practitioners which allows them to integrate different types of data such as maps, satellite images, and survey data, to analyze and understand complex relationships between spatially distributed features. GIS technology has diverse applications across multiple urban development sectors from land use, transportation, infrastructure, to environmental sustainability, and social equity.

This 4-week Program designed in a blended format aims to equip participants with working knowledge of GIS through theory and practical sessions. Participants will learn how to capture, store, manage, analyze and visualize spatial data. This program is developed and curated by Center for Applied Geomatics, CRDF in consultation with CEPT Professional Programs, CEPT University.



PROGRAM STRUCTURE

The Program has a structure that comprises five thematic modules, which will cover specific topics aimed at facilitating an understanding of the fundamentals of GIS. Participants will learn about spatial adjustments and geoprocessing tools, spatial analysis, and mapping. The first three modules will be conducted in an online mode and will include input lectures and hands-on exercises. In the final two modules, participants will have the unique opportunity to work on spatial analysis tools in the GIS lab at CEPT University, receiving hands-on guidance and mentorship from experienced tutors.

Module 1: Introduction To Geomatics, Geospatial Policy, And Coordinate System

In the opening module of the course, participants will receive an introduction to Geomatics. The session will feature a guest lecture by Anjana Vyas, who will discuss the benefits of India's geospatial policy and its scope. Furthermore, a brief overview of data types, base maps, and coordinate systems will be provided.

Module 2: Introduction to GIS Software And Fundamental Concepts

The primary objective of this module is to provide hands-on experience using GIS software, followed by a comprehensive understanding of fundamental GIS concepts such as data handling, conversion, and geodatabase creation, as well as their practical applications.

Module 3: Introduction to Spatial Adjustment Tools , Geoprocessing Tools And Remote Sensing

This module aims to provide a concise understanding of spatial adjustment tools and geoprocessing tools, including their practical applications. Additionally, the later part of this module will cover the basic principles and elements of remote sensing.

Module 4: Working With Spatial And Nonspatial Data

This module provides a comprehensive understanding of raster post-processing and visualization techniques, as well as practical applications for working with spatial queries, joining and relating spatial and non-spatial data. In addition, the importance of metadata in GIS is also covered to ensure participants have a well-rounded understanding of GIS concepts and applications.

Module 5: Spatial Analysis And Mapping

Spatial analysis and mapping are essential tools for understanding and interpreting geographic data. This module will help attendees in better decision-making and improved planning.

GUEST SPEAKERS



Dr. Anjana Vyas
Guest Speaker

In her more than 4 decades of her association with CEPT University, Prof. Anjana Vyas has been in various CEPT key programme positions as Dean, FGSA; Acting Dean, FT; Programme Chair, Geomatics, FT; Executive Director, Senior Consultant, Center for Applied Geomatics, CRDF, CEPT. She is pioneer in establishing Remote Sensing and Geomatics stream, very first, to the State of Gujarat. Her deep involvement bestowed 'Best Geospatial Education University Award' to CEPT University by ESRI. She has graced key positions in ISPRS; DST, Government of India. Her research publications reached 100+ papers and book chapters. Awarded grants for 50+ research projects from ISRO, DST, MoES, MoEF, and international organizations- World Bank, UN and ISPRS as Team Leader. Recently she was felicitated for her outstanding contribution to ISRS. She is honoured with 'Fellow' of Indian Society of Remote Sensing and Indian Society of Geomatics.



Dr. Shiv Mohan
Guest Speaker

Dr Shiv Mohan is one of the leading researcher and educator with specialization in microwave remote sensing. He served ISRO during 1978 to 2011 and initiated microwave remote sensing application program for India. He was awarded SAR projects from European space agency, Japanese exploration agency, Italian space agency and NASA/DLR where he explored multiparameter SAR data over Indian region for developing various SAR applications. He was also lead contributor of Chandrayaan-1 Mini SAR water ice detection model. He also worked with Physical Research Laboratory where he evolved application of dual frequency microwave data for lunar water ice model, regolith depth modeling and crater morphology. He has 320 research papers in Journals, conferences, ISRO reports and conducted about 190 tutorials. He has guided 22 PG and three PhD dissertations. He is presently visiting faculty at CEPT University, Nirma University and Gujarat University. He is founder Chair of IEEE GRSS Gujarat Chapter.

PROGRAM FACULTY



Dr. Shaily Gandhi
Program Faculty

Shaily is a GIS expert with more than 10 years of experience. She is a Ph.D. from CEPT University in Geospatial Technology, and expertise in bridging the gap between GIS & governance.

Shaily is an executive committee member for the Committee on Data of the International Science Council (ISC) and Joint Secretary of ISRS, Ahmedabad Chapter. She is an active member of IEEE, ISG, and ISRS societies. She contributes in important research projects as Data scientist and GIS expert with different centers at CRDF. She works closely on projects with GIDB, ISRO, GIZ, CODATA, DST Nagoya.

Shaily has been appointed as the program chair for the MTech program in Geomatics (MGeo), at the faculty of Technology. Dr. Shaily Gandhi has been awarded as one of the world's 50 rising stars for 2023 by Geospatial World.



Manushi Bhatt
Program Faculty

Manushi Bhatt is an alumna of the Faculty of Planning. She holds a Bachelor's degree in Planning from CEPT University and a Master's degree in Remote Sensing and GIS (with a specialization in Urban and Regional Studies) from the Indian Institute of Remote Sensing (IIRS), Dehradun. She has been working as an Urban Planner and GIS Analyst for more than 3 years and she has worked on various GIS-intensive transportation projects during the same. Presently, she is engaged as a visiting professor at the Faculty of Technology teaching GIS to the first-year students of M.Tech Geomatics. Her research interests are mainly aligned with the application of remote sensing and GIS for urban studies.

PROGRAM TUTOR



Vagmi Patel
Program Tutor

Vagmi Patel is an alumna of the Faculty of Technology. She holds a Master's degree in Geomatics from CEPT University. She is currently working as Research Associate with the Centre for Applied Geomatics (CRDF). She has worked on various thematic areas like GIS for governance, geospatial modeling for monitoring traffic air pollution, and the application of GIS in the insurance sector. Her research area is mainly aligned with Disaster risk reduction & Air pollution monitoring. She has been awarded first runner-up in AABTonics - International GIS competition 2021 & India Clean Air Summit 2022.

PROGRAM CALENDAR

Program will be conducted in a Blended Learning Mode. The first three modules will be conducted online, with input sessions each day. The last two modules of the program will take place on CEPT campus and will be dedicated to hands-on immersion in GIS software for participants, with full-day sessions designed to deepen their understanding and expertise in utilizing GIS tools. The day to day schedule of the program is shared below:

Days	Description	Contact Hrs	Mode
DAY 1 03-June-2023 08:00 AM - 10:00 AM	Module 1 : Introduction to Geomatics and Geospatial policy in India. <ul style="list-style-type: none">• Introduction to Geomatics and it's application• Benefits of Geospatial policy in India	2 hours	Online
DAY 2 04-June-2023 08:00 AM - 12:30 PM	Module 1 : Data Types & Coordinate System <ul style="list-style-type: none">• Data types in GIS• Basemaps and their importance• Coordinate systems	4 Hours	Online
DAY 3 10-June-2023 08:00 AM - 10:00 AM	Module 2 : Introduction to GIS Software <ul style="list-style-type: none">• Introduction to GIS software• Installation of ArcGIS Pro• GIS Data handling	2 Hours	Online
DAY 4 11-June-2023 08:00 AM - 12:30 PM	Module 2 : Introduction to Fundamental Concepts of GIS <ul style="list-style-type: none">• Concept of Geocoding & Geotagging• Data Conversion from various data formats to GIS formats• Introduction to Geodatabase and digitization• Applications of GIS	4 Hours	Online

<p>DAY 5</p> <p>17-June-2023</p> <p>08:00 AM - 10:00 AM</p>	<p>Module 3 : Introduction to Spatial Adjustment Tools & Geoprocessing Tools</p> <ul style="list-style-type: none"> • Introduction to various data sources • Spatial adjustment tools • Introduction to geoprocessing tools 	2 Hours	Online
<p>DAY 6</p> <p>18-June-2023</p> <p>08:00 AM - 12:30 PM</p>	<p>Module 3 : Introduction to Remote Sensing.</p> <ul style="list-style-type: none"> • Introduction to remote sensing • Image resolutions and their relationship with the level of mapping. • Basic principles and elements of image interpretation, and features extraction. 	4 Hours	Online
<p>DAY 7</p> <p>24-June-2023</p> <p>10:00 AM - 6:30 PM</p>	<p>Module 4 : Working With Spatial And Nonspatial Data</p> <ul style="list-style-type: none"> • Raster download, mosaic, and visualization • Importance of Metadata • Working with spatial and nonspatial data • Geoprocessing tools • Querying • Data join & relate 	6 Hours	offline
<p>DAY 8</p> <p>25-June-2023</p> <p>10:00 AM - 6:30 PM</p>	<p>Module 5 : Spatial Analysis And Mapping</p> <ul style="list-style-type: none"> • Practical of Spatial Analysis using case study • Introduction to map elements and its importance • Creating Map layout • Cartography techniques • How to share map & map layout 	5 Hours	Offline

ADMISSIONS AND APPLICATIONS

Application Process	Online applications have already commenced. To apply to the program visit the CPP website http://cpp.cept.ac.in/ Applicants should complete the online form and attach their CV/resume..
Application Deadline	20 May 2023 (The deadline for this program is indicative. All applications will be considered as they are received, and seats will be allotted on a first come first serve basis. Admissions will be closed once all seats are full)
Program Dates	03 June to 24 June 2023 (Blended Learning Mode)
Who can Apply?	The program is open to Professionals, Researchers, Teachers and Students from Planning, Architecture, Geography, Engineering or any other field allied to built-environment and environmental studies.
Fees	INR 25,000/- + GST (Exclusive of travel cost, meals and , accommodation etc.)
Certificate	Participants will receive a certificate from CEPT University on successful completion of the program.





CEPT Professional Programs

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