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## Two Days Workshop

on

### “Spatial Data Acquisition and Spatial Analysis by Using Open Source Technologies [Quantum GIS (QGIS) and Google Earth Engine (GEE)] and Chat GPT”

13 – 14 May 2023

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#### **About the Workshop:**

Spatial data is all around us, and it's crucial to have the skills to acquire and analyze it to make informed decisions. The access to geospatial data is the backbone to numerous fields of research related to the fields of geodesy, geosciences, civil engineering, environmental studies, precision in agriculture, and forestry, etc. It is also considered as a core infrastructure of modern IT world, which is substantiated by business transactions of major IT companies.

The workshop is designed to present a firm understanding of spatial data, data types and data analysis to the learners. This workshop will cover the basics of spatial data acquisition and analysis, including Data types - *different types of spatial data, such as vector data, raster data, and attribute data*, Sources - *remote sensing, GPS, aerial photogrammetry*, and Data analysis techniques - *spatial statistics, spatial interpolation, spatial clustering, and image processing* that are commonly used for spatial data analysis. The workshop will also help the learners to use ChatGPT, an Artificial Intelligence (AI) tool, for spatial data analysis such as to process and analyze large amounts of text data that are related to geographic areas or that include location information, to identify patterns and trends or needs that are relevant to specific geographic areas.

By the end of this workshop, the learners will not only have a solid foundation in spatial data acquisition and analysis, but they will also be equipped with the skills to apply these techniques to real-world problems.

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#### **About S.P.C.E:**

Sardar Patel College of Engineering (SPCE) under the management of the Bhartiya Vidya Bhavan, is autonomous and affiliated to the University of Mumbai for the full-time degree, postgraduate, and research programs. The institute has set high standards for aspiring engineering students and meets the need of quality education in the challenging world of business. Over the last 60 years the college has gained an excellent reputation in the field of Technical Education. SPCE is one of the few colleges that have received Grade ‘A+’ rating for its aided courses from the Govt. of Maharashtra which certifies the spirit of excellence that the institute has symbolized and always practiced. Two programs of the institute viz: *B. Tech. (Mechanical Engineering)*, *B. Tech. (Civil Engineering)* are accredited by National Board of Accreditation (NBA) till 30th June 2025. Further, institute is also accredited by National Assessment and Accreditation Council (NAAC). Institute celebrated its 60th year jubilee in the year 2022.

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### Workshop Content and Schedule:

#### Day 1:

- Introduction to GIS (Geographic Information System)
- Understanding spatial data and its importance
- Spatial data types and formats
- Data acquisition and management
- Spatial data analysis techniques
- Basic GIS analysis tools
- Creating effective maps using GIS software
- Real-world applications of GIS

#### Day 2:

- Introduction to programming and Google Earth Engine
- Working with raster and vector data in GEE
- Advanced GIS analysis techniques in GEE and opensource
- Time series analysis using GEE
- Spatial Analysis using Python
- Chat GPT for GIS

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### Guest Speaker:

Dr.Karthik Nagarajan, ISRO (IIRS) Outreach Network Coordinator & Associate Professor - Pillai HOC College of Engineering and Technology, New Panvel, Navi Mumbai.

### Workshop Trainers:

1. Dr. Reshma Raskar – Phule, Assistant Professor, Civil Engg. Deptt., S.P.C.E., Mumbai
2. Mr. Bala Subramaniam, Geospatial Developer - Red Planet & Freelance GIS Consultant
3. Ms. Deepakshi Babbar, Ph.D student at IIT Bombay – selected for prestigious Prime Minister's Research Fellowship (PMRF)

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**Who can participate:** Undergraduate, Post graduate, Ph.D Students of any discipline are invited for the participation. There is no registration fee for the participants\*.

**Registration Link:** <https://forms.gle/mVn4vhJCWgLS5QZX6>

**\*A digital E-certificate will be provided to all participants based on satisfactory attendance.**

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#### Patrons:

Dr. M.M.Murudi  
I/C Principal & HoD - Civil Engineering Department

Dr. Anupa Sabnis  
Dean Academics

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#### Coordinator:

Dr. Reshma Raskar – Phule, Assistant Professor, Civil Engineering Department, S.P.C.E.

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