



**PRESIDENCY
UNIVERSITY**

**Presidency School of
Engineering**

**DEPARTMENT OF
CIVIL ENGINEERING**

**Vision Group on Science
and Technology (VGST),
Government of Karnataka
*sponsored***

**Five-Day Faculty
Development Programme**

**Beyond the
Horizon:
Innovative
Engineering
Practices with
Drone-Based
Surveying and
Digital Mapping**

17-21 February 2025

www.presidencyuniversity.in

Sponsored by



Presidency University

Presidency University, Bengaluru, is a prestigious institution renowned for its commitment to providing quality education and fostering the holistic development of its students. Founded in 2013 by the Presidency Group of Institutions, the university has quickly emerged as a leading center for higher education in India. With a focus on innovation, research, and experiential learning, Presidency University has become a preferred destination for aspiring students seeking academic excellence and personal growth. The university takes pride in offering academic programs across diverse disciplines, including engineering, management, law, design, commerce, and media studies.

The Presidency Group of Institutions (PGI) was honored with the “Most Promising Institute in South India” award at the British South India Council of Commerce and Business Meet in 2014. The University nurtures individual talents to shape students into successful professionals and responsible citizens.

Department of Civil Engineering

The Department of Civil Engineering at Presidency University offers a bachelor's degree (B. Tech.) in Civil Engineering, a postgraduate degree (M. Tech.) in Building Construction Technology, and doctoral programs in Civil Engineering. The department features highly experienced faculty, including postgraduates and doctorates from top institutions like IITs, NITs, and other renowned universities in India and abroad, dedicated to training future civil engineers. The department has state-of-the-art labs and has excellent experimental and computational facilities in the fields of soil mechanics, environmental engineering, concrete technology, and structural engineering. The department offers consultancy services in the areas of material testing, soil testing, ground water hydrology, lake restoration, surveying, cadastral mapping, water testing, structural design, retrofitting and rehabilitation. The department has built expertise in Advanced surveying and has setup a Center for Advanced Survey and Photogrammetry. To ensure industry relevant curriculum and industry-academia interaction, the Department has entered into strategic MoUs with several leading Industries and Research Organizations. The department is also involved in several social outreach activities working with the ISR cell of the university and leading NGOs.

The vision of the department is imparting futuristic technical education with a high degree of professionalism, striving to achieve global standards to make students technologically competent.



About the FDP

Drone survey is a method of collecting high-resolution aerial data using unmanned aerial vehicles (UAVs), commonly known as drones. The relevance and significance of drone surveys are numerous, particularly in fields such as construction, agriculture, mapping, and surveying. Drone surveys are an excellent tool for digitizing and developing cadastral and habitation maps. Cadastral maps show the boundaries of land ownership and are critical for managing land-use, property valuation, and taxation. Habitation maps, on the other hand, show the distribution and density of population in a particular area, which is important for urban planning and infrastructure development. Drone surveys can collect high-resolution imagery that can be used to create accurate and up-to-date cadastral and habitation maps. The imagery can be processed using photogrammetry software to create 3D models and orthomosaics, which can be used to extract precise measurements and locate features such as roads, buildings, and vegetation.

Project SVAMITVA is a Government of India initiative to provide the 'record of rights' to village household owners by demarcation of rural abadi (populated) areas using Drone Surveying Technology. This has created massive opportunity for drone operators and data processing teams to contribute to this nation building exercise. The five-day FDP will give hands-on experience to participants in flying professional survey grade drone and post-processing techniques involved in generating Ortho-Rectified Image (ORI) maps, Cadastral and Habitation Maps. Offline participants will benefit further by visiting CDSpace facility in Bengaluru and learn first-hand from industry experts regarding drone assembly and conducting test flights.

Objectives of the FDP

1. Identify components and equipment required for Drone Survey in line with SVAMITVA scheme, Government of India initiative.
2. Provide Hands-on experience flying professional-grade survey drone from the industry experts.
3. Generate Ortho-Rectified Image (ORI) maps from Drone Survey Images using Photogrammetry and Pix4D software
4. Develop Cadastral and Habitat maps (Digitization) in QGIS and ArcGIS software programs.
5. Site-visit to CDSpace facility to learn first-hand about drone assembly and conducting test flights in various terrains.



Schedule

Date	Time	Topic	Resource Person(s)
Day 1	10:00 AM - 12:00 PM	UAV Fundamentals and Design	Mr. Rahul Ramanna Asst. Vice President - Aerospace Systems NewSpace Research and Technologies Pvt Ltd Bengaluru
		Types of Survey Drones, Scalability and Serviceability - PPK/RTK, Hardware configuration, procurement and assembly	Mr. Praveen Deputy Chief Remote Pilot Instructor, Aereo
	12:00 PM - 1:00 PM	Lunch Break	
	1:30 PM - 3:30 PM	Applications of Drone in SVAMITVA resurvey project and Flood zone mapping (Live Projects) - Clear Water Dynamics (CWD)	Mr. Rajeshwar R Chief Executive Officer (CEO) Clear Water Dynamics
		Applications of Drones, Drone Business in India, and Vision of India as the Drone Capital of the World.	Dr. K. Ramesh Kumar, Head - RPTO Establishments Garuda Aerospace
		Creation of DEM for reduction of natural and manmade hazards in identified areas using Drone.	Dr. Jagdish H Godihal Professor Department of Civil Engineering Presidency University
	3:30 PM - 3:45 PM	Overview and Discussions of the day	
Day 2	10:00AM - 12:00 PM	Drone Flying 101 (Intro.)	Mr. Karthik M H Co-Founder, BK Drones Assistant Professor, Presidency University
		Mastering KML Preparation, Control Points and GCP Marking: Key Steps for Precision Mapping	Dr. Shwetha A Assistant Professor - Selection grade Department of Civil Engineering Presidency University
		Drone flight programming and Pre-flight Checklist	Mr. Bibang Gwra Basumatary Co-Founder BK Drones
	12:00 PM - 1:00 PM	Lunch Break	

Free Registration

Registration Link:

<https://bit.ly/PUVGSTBeyondtheHorizon>

Scan to Register



Schedule

Date	Time	Topic	Resource Person(s)
	1:30 PM - 3:30 PM	Hands-on Drone flight session in Presidency University campus (70 acres) Data collection; Segregation of drone based data images	Mr. Surya Project Engineer and Drone Pilot Vimatraya Mr. Tejas S Drone Pilot BK Drones
	3:30 PM - 3:45 PM	Overview and Discussions of the day	
Day 3	10:00 AM - 12:00 PM	Post-flight checklist and processing, Real Time Kinematic (RTK) conversion, Geotagging.	Mr. Bibang Gwra Basumatary Co-Founder, BK Drones Mr. Bheemrao Research Scholar and GIS Specialist Department of Civil Engineering Presidency University
	12:00 PM - 1:00 PM	Lunch Break	
	1:30 PM - 3:30 PM	Hands-on session on generating Ortho-Rectified Images (ORI). Quality checking (QC) using Pix4dD and Global Mapper software	Mr. Karthik M H Co-Founder BK Drones Mr. Balachandan Research Scholar and GIS Specialist Department of Civil Engineering Presidency University
	3:30 PM - 3:45 PM	Overview and Discussions of the day	
Day 4	10:00 AM - 12:00 PM	Introduction to Digitization and applications Digitization using QGIS and ArcGIS software program	Dr. Shwetha A Assistant Professor - Selection grade Department of Civil Engineering Presidency University Dr. Nakul R Professor and Head Department of Civil Engineering Presidency University
	12:00 PM - 1:00 PM	Lunch Break	
	1:30 PM - 3:30 PM	Digitization - Hands-on session on preparation of cadastral maps	Dr. Shashank CEO Vimatraya Geospatial Services



Date	Time	Topic	Resource Person(s)
		Digitization - Hands-on session on habitation marking on cadastral maps (Habitation map development)	Mr. Santhosh Cadastral Mapping Expert BK Drones
			Ms. Shravani L Cadastral Mapping Expert BK Drones
	3:30 PM - 3:45 PM	Overview and Discussions of the day	
	09:00 AM - 10:00 AM	Valedictory and Feedback	
Day 5	10:00 AM - 02:00 PM	Site visit to CDspace facility to learn about drone building and flight testing from industry experts	Mr. Shreyash Tade Co-Founder CDspace Robotics

Chief Patron

Dr. Nissar Ahmed

Honorable Chancellor

Patrons

Dr. Vijayan Immanuel

Vice Chancellor in - Charge

Dr. Md. Sameeruddin Khan

Pro Vice Chancellor

Dr. Vidya Shankar Shetty

Pro Vice Chancellor

Dr. Sameena Noor Ahmed Panali

Registrar and Associate Director - Office of the Chancellor

Dr. K R Murali Mohan

Director - Incubation & Sponsored Research

Dr. Shilpa Mehta

Dean- Academic Research

Dr. Abdul Sharief

Dean - School of Engineering

Dr. Sivaperumal S

Dean - Academics & Director - International Relations

Dr. Shrishail Anadinni

Associate Dean, School of Engineering

Convenor

Dr. Shwetha A

Assistant Professor-Selection Grade,
Department of Civil Engineering

Co-Convenor

Dr. Nakul Ramanna

Professor and Head,
Department of Civil Engineering

Coordinators

Mr. Karthik M H

Asst. Prof-Grade -1
Department of Civil Engineering

Mr. Bibang Gwra Basumatary

Research Scholar
Department of Civil Engineering

