## About Us

The Regional Center for Geodesy (RCG) at IIT Bombay was established in 2022 within the Department of Civil Engineering to enhance capacity building in modern surveying techniques, including GNSS surveying, UAV surveying, space geodesy, and imaging geodesy, with a particular focus on western India.

RCG specializes in advanced surveying and applied geodesy for environmental monitoring and other practical applications. Our mission is to equip individuals with cutting-edge skills and knowledge, fostering innovation and expertise in the field.

Beyond research and training, we also offer special outreach programs for students and professionals, providing opportunities for continuous learning and career advancement in geodesy.

## Eligibility

- ✓ Professionals, land surveyors, academicians and researchers from Central/State Govt. Organizations/ Private Companies/NGO/self-employed practitioners engaged in positioning, mapping, surveying, local/ national level surveys.
- ✓ Participants should have at least Diploma level degree in Civil Engg/ Surveying/Geoinformatics

## Fee Structure

| | |
|---|---|
| **Student Participants** | **5,000/-** |
| **Industry participants** | **15,000/-** |
| **Academic and Government organizations participant** | **15,000/-** |

*** The course fee covers all course materials, a working lunch, and tea/coffee refreshments during both morning and afternoon breaks.**

**Short Course on Advanced GNSS Surveying and Mapping**

**5th – 7th May 2025**

**Organized by**

**Regional Centre for Geodesy, Department of Civil Engineering, Indian Institute of Technology Bombay**

***Course Coordinator***

**Prof. RAAJ Ramsankaran**

# Advanced GNSS Surveying and Mapping

Regional Centre for Geodesy
IIT Bombay

***https://www.civil.iitb.ac.in/rcg/***

# Course Schedule

| Date | Time | Particular |
|---|---|---|
| **5th May 2025** | 9:30 AM to 5.00 PM | **Classroom Engagement and Instrument Demo** |
| **6th May 2025** | 9:30 AM to 12:30 PM | **Fieldwork** |
| | 2:00 PM to 5:00 PM | **Data Processing** |
| **7th May 2025** | 9:30 PM to 12:30 PM | **Fieldwork** |
| | 2:00 PM to 5:00 PM | **Data Processing** |

***Successful participants would be issued 'Course Participation Certificate'***

***Only limited paid accommodation in guest house and student Hostels) is available on first come basis.**

**For more details and Registration click**

# Introduction

Advanced surveying instruments and techniques are essential for creating accurate maps, managing land, and facilitating efficient planning. With rapid technological advancements, modern tools like GNSS receivers have become more precise and user-friendly, enabling highly accurate positioning.

This workshop offers an opportunity to explore the latest surveying methods through concise lectures, practical demonstrations of GNSS and data processing techniques. Participants will gain hands-on experience with high-end instruments along with training in data processing using industry preferred software and open-source alternatives. The course is designed for geospatial professionals, land surveyors, academicians, and students. This three-day workshop shall provide practical skills to apply modern surveying techniques in

# Scan for Registration

Also, find the registration link at
https://www.civil.iitb.ac.in/rcg/

# Course Outline

Apart from the field data collection and data processing, the course will contain classroom lecture modules covering sufficient theory on the following topics:

- Introduction to GNSS
- Global and Regional Navigation System
- Map projections, Coordinate systems, and different height systems
- Applications of GNSS
- Source and error budget in GNSS
- Overview of differential GNSS
- Continuously Operating Reference Stations (CORS)
- Satellite based Augmentation System, (SBAS)
- Static, Real Time Kinematic (RTK), and Post Processing Kinematic (PPK) mode
- Best practices in GNSS survey
- GNSS surveying report generation

# Demonstration/Hands on Facility

Participants will receive demonstrations and hands-on experience using Trimble R12 and mass-market GNSS receivers in various surveying techniques. Practical demonstrations of data processing and analysis will be provided using Trimble Business Center (TBC) and accessible free/open-source software.

# Course Benefits

This course will be useful for academicians, surveyors and geo-spatial professionals in the field of construction, surveying, positioning, mapping and Central/ State Govt./ Private Organizations/NGO/self-employed practitioners engaged in village/town/state/national-level surveys for mapping and infrastructure development projects.

As participants are expected from all over India, this course would also provide an excellent opportunity for the participants to interact with one another and discuss problems and solutions

# Course Instructors

Professors from IIT Bombay and Industry experts from Trimble India

# Course Coordinator

Prof. RAAJ Ramsankaran
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Indian Institute of Technology
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**Last date of registration: 20th April 2025**

**Slots available! Max. 15 members**

# Venue

Department of Civil Engineering,
IIT Bombay, Powai,
Mumbai – 400 076, Maharashtra