Short-term course on
Introduction to GNSS and its Applications
January 11-15, 2027



Organized by

National Centre for Geodesy
Indian Institute of Technology Kanpur
Kanpur-208016, Uttar Pradesh
www.iitk.ac.in/ncg

We encourage you to apply promptly to secure your place.

Important dates:

Application last date	**December 31, 2026**
Course start date	**January 11, 2027**
Course end date	**January 15, 2027**

Course fee

The course fee is ₹25,000, which includes course material, handouts, institute overheads and GST. Participants can make the registration fee payment through SBI Collect using the procedure explained on the following link:
https://drive.google.com/drive/folders/1SqDxer6dpk0Kx8faCiLu32mUWTJimt3a?usp=sharing
Please ensure to share the payment receipt details in the online Google form.

How to apply

To register, please follow the following steps:

- Fill out the Google application form at the link: *https://forms.gle/GQ7EDWC5E24eL2NX8*
- ***Note:*** **Offline applications will not be accepted.** Seats are limited to 25 participants and registration will be on a first-come, first-served basis.

About the course

Global Navigation Satellite Systems (GNSS), including GPS, GLONASS, Galileo, BeiDou, QZSS and NavIC, are essential tools for precise positioning, navigation, timing and a wide range of geodetic and Earth science applications.

This five-day short-term course aims to provide participants with a comprehensive understanding of GNSS fundamentals, geodetic reference systems, observation equations, least-squares estimation and network adjustment. The programme will also introduce the status and development of the Indian Continuously Operating Reference Station (CORS) network and explore various scientific and practical applications of GNSS.

The course will combine expert lectures with intensive hands-on training in GNSS data processing using high precision scientific software such as BERNESE 5.4, GAMIT/GLOBK & GipsyX enabling participants to develop practical skills in processing GNSS observations and understanding high-precision positioning solutions.

Who will benefit from this course

The course is designed for professionals from government and private organizations, faculty members, researchers, professionals from industries and students desirous of learning GNSS and its applications.

Course duration and structure

The course spans five days, featuring two 75-minute lectures every day in the first half, followed by a 3-hour hands-on lab session in the afternoon. Key topics to be covered in the course are as follows:

- *GNSS Fundamentals*: Satellite signals, observables, measurement accuracy, observation equations, errors and biases.
- *Reference Systems and Positioning*: Geodetic reference frames, differential positioning and space-based augmentation systems.
- *GNSS Data Processing*: Least-squares estimation, baseline processing and GNSS network adjustment.
- *Indian CORS Network:* Current status, and geodetic network densification and optimisation.
- Space Weather Effects on GNSS-Based Geodesy.
- Hands-on Training: GNSS data processing using BERNESE 5.4, GAMIT/GLOBK and GipsyX.

About NCG

The National Centre for Geodesy (NCG), established at IIT Kanpur on July 1, 2019, with support from the Department of Science and Technology (DST), Government of India, aims to advance geodesy through education, capacity building, research and development. NCG promotes geodetic education and training, conducts advanced research, and develops academic resources. It also serves as a national resource centre, providing scientific infrastructure, laboratory facilities, software and technical expertise to students, researchers and government & private organisations.

Course coordinator

Prof. Onkar Dikshit
Department of Civil Engineering &
Coordinator, National Centre for Geodesy
Indian Institute of Technology Kanpur

Accommodation

Participants are responsible for their own boarding and lodging charges at the Guest House, IIT Kanpur. Accommodation can be arranged at Guest House, IIT Kanpur in single/double occupancy. The request for accommodation must be indicated in the google registration form.
Tariff at IITK Guest House:

- Single Occupancy: ₹1,500 per day
- Double Occupancy: ₹2,000 per day

Contact details

For more details and further clarifications, you may contact:
Email: ncg@iitk.ac.in
Phone: 0512-2596417

Course certificate

Participation certificate will be given to the candidates attending all the lectures and labs sessions.

Location

IIT Kanpur is about 15 km from the Kanpur Central Railway Station and 17 km from Kanpur Airport. The city is well connected by road, rail, and air. For more information, kindly visit:
https://www.iitk.ac.in/cce/how-to-reach-iitk.php