UTOKYO/ICG
Global Navigation Satellite Systems (GNSS) Training

1   Program Name

UTOKYO/ICG Global Navigation Satellite Systems (GNSS) training program is jointly organized by Centre for Spatial Information Science (CSIS), The University of Tokyo (UTokyo), Japan and International Committee on Global Navigation Satellite Systems (ICG), United Nations Office for Outer Space Affairs (UNOOSA), Vienna, Austria.

2   Organizers

- Centre for Spatial Information Science (CSIS), The University of Tokyo, Japan
- International Committee on Global Navigation Satellite Systems (ICG), Office for Outer Space Affairs (UNOOSA), Vienna, Austria

3   Local Organizer

- Nepal Academy of Science and Technology (NAST)
- Center for Space Science and Geomatics Studies (CSSGS)
  Pashchimanchal Campus, Tribhuvan University, Pokhara, Nepal
- Institute of Engineering (IOE), Pulchowk Campus, Tribhuvan University, Lalitpur, Nepal

4   Program Overview

This training program focuses on introduction to GNSS and GNSS data processing.
After the training, the participants will be able to process GNSS data for

- High accuracy using RTK and MADOCA PPP
- Early Warning System

Key features:
- Understand GNSS data types, GNSS errors, coordinate systems and applications.
- GNSS High-Accuracy data processing methods using RTK and MADOCA PPP
- Learn RTKLIB for high-accuracy GNSS data processing
- Use Low-Cost GNSS receiver systems
- Use of Android devices to log GNSS data for high accuracy

5   Venue:

The training will be held at the Institute of Engineering, Pulchowk Campus, Tribhuvan University, Lalitpur, and Nepal Academy of Science and Technology (NAST), Lalitpur, Nepal. Lalitpur also known as Patan is a city next to Kathmandu.

6   Course Name, Schedule and Requirements

	Course Name	Days	Dates	Target Participants	Pre-Requisites for Participation
1	UTOKYO/ICG Training on Global Navigation Satellite Systems (GNSS)	6	27 January – 1 February 2025	Anybody interested in learning GNSS technology and data processing.	Online study of GNSS materials published in item 16.

7   Number of Participants
The maximum number of participants will be limited to 50.
- On-Site Participants (International)   :   20 – 30
- On-Site Participation (Domestic)   :   20 – 30

8   Mode of Training
The training program will be conducted on-site only. However, the conduction of the on-site program will depend on the local COVID-19 situation and restrictions. All necessary actions will be taken to maintain the recommended procedures against COVID-19. The on-site program may be canceled and changed to online depending upon the COVID-19 situation. This will be decided at least 2 weeks before the event.

9   International Participants
Neither the organizers nor the local host will be responsible for any situations such as travel restrictions or cancellation of flights that may arise due to the COVID-19 situation. It is the participant's sole responsibility to prepare for his or her travel.

10   Travel Funding
Limited travel funding will be provided by ICG to eligible international participants. Travel funding is not available for the participants from Nepal for domestic travel. The funding covers only two-way economy-class air travel between the participant's nearest international airport and Tribhuvan International Airport, Kathmandu.
All other expenses (hotel, insurance, and daily expenses for food etc.) must be paid by the participant. The local organizers will provide logistics support related to visa, hotel booking, and other transport-related matters. However, all the costs shall be paid by the participants.

11   Important Dates
- Application Deadlines: 17:00 JST, 13th December 2024 (with travel funding)
                                                6th January 2025 (without funding)

12   Link to Online Application

https://forms.gle/NhrBvrmgYMZ2bSzB7

13 Pre-Requisite

This training program requires certain prerequisites to participate. The prerequisite materials (see 16 below) will help you to understand the basics of GNSS. This will also make you familiar with necessary GNSS data, data formats, and data processing tools. During the training, the basics of technology will be explained and more time will be allocated to learn about GNSS data formats and data processing for high-accuracy.

All participants must bring their computer for GNSS data processing.

14 Hands-On Exercise

Arrangements will be made for several units of different types of Low-Cost GNSS receivers including access to continuously operating reference stations (CORS) for various types of data processing. Several sample GNSS data sets for static and dynamic observation will be provided.

Hardware	Software	Other
Septentrio: MOSAIC, PolaRx5	RTKLIB	
u-blox : F9P, D9C, M10	MAD-WIN, MAD-PI, MADROID, MALIB	
SONY: CXD5610, Spresense	Spresense	
	Maker Software	

15 Online Access to Receiver

UTokyo will arrange online real-time access to different types of GNSS receivers located in Japan as well as in Nepal for training and hands-on exercise. The available receivers are Trimble NetR9, Septentrio PolaRx5, Septentrio MOSAIC, U-Blox F9P/M8T, MADOCA Receiver, SONY CXD5610, and Sony SPRESENSE. This will provide many opportunities to work with different types of data sets.

16 Reference Links:

UTokyo HP: https://home.csis.u-tokyo.ac.jp/~dinesh/GNSS_Train.htm
ICG Information Portal: https://www.unoosa.org/oosa/en/ourwork/icg/activities.html