(Hybrid Format) Global Navigation Satellite Systems Training Programme

1 Program name

Training programme on Global Navigation Satellite Systems (GNSS), jointly organized by the Centre for Spatial Information Science (CSIS), The University of Tokyo (UTokyo), Japan and the International Committee on Global Navigation Satellite Systems (ICG)/Office for Outer Space Affairs, Vienna, Austria.

- Program 1: GNSS Training Programme (Hybrid format)
- Program 2: Workshop on GNSS Applications for Policy and Decision Makers (Online Only)

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, Vienna, Austria

3 Local Organizer

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

4 Training Programs

4.1 Program – 1 (GNSS Training programme)

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.
Key features:

- Understanding GNSS data types, GNSS errors, coordinate systems and applications.
- Use real time kinematic (RTK) and Multi-GNSS Advanced Demonstration tool for Orbit and Clock Analysis (MADOCA) to process GNSS data for high accuracy.
- Use Low-Cost Receiver system data.
- Learning and using RTKLIB, RTKDROID, MADROID and MAD-WIN software.
- Use of Android devices to log GNSS data for high-accuracy.

4.2 Program – 2 (Workshop on GNSS Applications for Policy and Decision Makers)

This workshop focuses on basic introduction to GNSS and how GNSS can be used in various applications.
Key features:

- Understanding basic GNSS technology and GNSS applications.
- Example case studies of low-cost receiver systems.
- Introduction to data processing tools for high-accuracy.
- Interpretation of GNSS technical terminologies that will help to formulate technical specifications for purchasing receivers and antenna.

5 Course Name, Schedule and Requirements

	Course Name	Days	Dates	Target Participants	Pre-Requisites for Participation
1	Program – 1: GNSS Training Programme	4	3 – 6 January 2023	Anyone who are interested in learning GNSS technology and data processing.	Online study of GNSS material published at item 15.
2	Program – 2: Workshop on GNSS Applications for Policy and Decision Makers	1	9 January 2023	People at policy and decision-making level in any discipline. Interested in implementing new technologies.	Online study of GNSS material published at item 15.

6 Number of Participants

6.1 Program – 1

Since Program 1 will be conducted in Hybrid mode, the maximum number of on-site participants will be limited as below:

- On-Site Participants (International) : 20
- On-Site Participation (Domestic) : 30
- Online Participants : 100

6.2 Program – 2

- On-Site Participants : 50
- Online Participants : 100

7 Mode of Training

The training program will be conducted both on-site and on-line. However, the conduction of on-site program will highly 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 cancelled and changed to online depending upon the COVID-19 situation. This will be decided at least 2 weeks before the event.

8 International Participants

International participants may attend on-site program provided that international and local travel is allowed during the time of the training. 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 COVID-19 situation. It is the participant's sole responsibility to prepare for his or her own travel.

9 Travel Funding

No travel funding is available for this training programme.

The local organizer will provide logistics support related with visa, hotel booking and other transport related matters. However, all the costs shall be paid by the participants.

10 Important Dates

- Application Deadlines : 26th December 2022 (Program – 1)
- Application Deadlines : 3rd January 2023 (Program – 2)

11 Links to Online Registration

11.1 Program – 1 (GNSS Training programme)

https://docs.google.com/forms/d/e/1FAIpQLSdo5-6B8crzbX8r0wPzu9XLZWvLu6BQwfdjZ3_bKUiydZaEug/viewform

11.2 Program – 2 (Workshop on GNSS Applications for Policy and Decision Makers)

https://docs.google.com/forms/d/e/1FAIpQLSezk1XdwqwXLs18QK8E_IOXbsWK8MOIoJp7M8iVwxv6APAFag/viewform

12 Pre-Requisite

This training program requires certain pre-requisites to participate. The necessary pre-requisites are to attend the online training materials and webinars that are designed to help you 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.

13 Hands-On Exercise

Arrangements will be made for several units of different types of GNSS receivers including continuously operating reference stations (CORS) for various types of data processing. However, this will be available for on-site participants only.

The online participants will have to rely on the sample data if there is no access to GNSS receivers locally. It may be possible for the participants from Thailand, Indonesia, Malaysia, Singapore, Philippines, Vietnam, Nepal and some other countries to access CORS data in their respective countries through UTokyo's partner universities in those countries. Nevertheless, several sample data will be provided for training.

14 Online Access to Receiver

UTokyo will arrange online real-time access to different types of receivers located in our campus building for training and hands-on exercise. The available receivers are Trimble NetR9, Septentrio PolaRx5, U-Blox F9P/M8T, MADOCA Receiver, SONY SPRESENSE and few other types. This will provide many opportunities to work with different types of data sets.

15 Pre-Requisite and Past Training References

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