



International Committee on  
Global Navigation Satellite Systems

CSIS

GIC

# **GNSS for Policy and Decision Makers – Course: T131-24**

## **A Seminar and Workshop Program**

### **Jointly Organized by GIC/AIT, CSIS/UT and ICG**

#### **Introduction**

The Global Positioning System (GPS) is widely used in almost all systems that require absolute position and time. It is due to its accuracy, availability and reliability. In addition to GPS of the United States, several other systems such as GLObal Navigation Satellite System (GLONASS) of the Russian Federation, the European global navigation system (Galileo) of the European Union, the BeiDou Navigation Satellite System (BDS) of China, the Indian Regional Navigation Satellite System (NavIC), India and the Quasi-Zenith Satellite System (QZSS), Japan are now available. Collectively, they are called GNSS (Global Navigation Satellite System). Today, a GNSS receiver can provide centimeter level accuracy even with a low-cost receiver, if an error correction technique is used. Thus, availability of low-cost and high-accuracy receivers will eventually increase GNSS related applications and its market. In order to keep the pace with these new applications and technological developments, it is necessary to develop human resources and skills.

Geoinformatics Center of Asian Institute of Technology (GIC/AIT) together with the Center for Spatial Information Science of The University of Tokyo (CSIS/UT) and International Committee on GNSS (ICG) are taking initiatives to create awareness on GNSS and its applications in Asia and the Pacific region. This program is a part of this initiative.

#### **Course Schedule : 06 - 08 January, 2020**

The participants may also join the last 2 days of GNSS Training (Course: T151-40) on 09 - 10 Jan, 2020 . These two days are dedicated for GNSS Field Survey, Data Analysis, and Accuracy Estimation etc. This will provide the participants more field experience on GNSS data logging and processing.

**Seminar Place:** AIT Conference Center,  
Asian Institute of Technology,  
Pathum Thani, Thailand



#### **Why you should attend this program?**

GNSS is not only for Surveying, Mapping and Car Navigation. It's used in many systems where position data are required. For example, analyzing traffic congestion data, monitoring public transport for security and safety, automation in agriculture, dynamic population census, timing services in banking sectors and telecommunication systems, security and safety related applications, law-enforcement, toll-fee charging, dynamic road pricing and aviation.

If you are involved in the policy and decision making level of any infrastructure project or any of the above mentioned working field or even if you would like to learn how GNSS can be utilized in various applications, then you are invited to attend this course in order to enhance your knowledge of GNSS and its applications.

#### **FIND US:**

[www.geoinfo.ait.asia](http://www.geoinfo.ait.asia)  
[www.facebook.com/gicait](https://www.facebook.com/gicait) [www.twitter.com/gicait](https://www.twitter.com/gicait)

For further information, please contact:

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Asian Institute of Technology,  
P.O.Box 4, Klong Luang, Pathumthani 12120,  
Thailand

T : +66 2524 5580 E : [geoinfo@ait.asia](mailto:geoinfo@ait.asia)

Applications can be downloaded from:

<http://geoinfo.ait.ac.th/gnss-training-2020/>

**Application Deadline: 2<sup>nd</sup> DEC 2019**

Past Training and Additional Information:

<http://www.csis.u-tokyo.ac.jp/~dinesh/>

## Objectives

This course is designed to give the participants:

1. Introduction to GNSS, comprised of GPS, GLONASS, GALILEO, BDS, QZSS and NavIC
2. Introduction to GNSS Applications
3. GNSS survey procedures and achievable accuracies
4. Introduction to GNSS related Software
5. GNSS Data logging using Android devices
6. Field Survey experience using Low-Cost receiver for High-Accuracy positioning
7. General budget estimation to implement an in-house GNSS system for high accuracy
8. Interpreting GNSS Technical Specifications

**Note:** Some of these lectures will be held together with Course T151-30. All field exercises on 9-10 Jan are held together with Course T151-30.

## Benefits

Upon completion of this course, the participants will be able to understand about how a GNSS system works, its applications, survey methods, interpretation of technical specifications, approximate budget and manpower estimation to implement GNSS. The participants will also have half-day GNSS field survey experience using low-cost receiver for high-accuracy.

## Costs:

**The course registration fee is free for all participants.**  
**The participants have to bear the following costs:**

1. Travel costs from the participant's home-town to AIT, Thailand and back to home-town.
2. Hotel accommodation at AIT Center Hotel for the whole seminar/workshop period
3. All expenses for food, insurance, medical emergencies etc.
4. Any other expenses if any not listed here to cover the participant's expenses

Please see below for an estimation of cost at AIT for Accommodation and Food.

## Accommodation and Logistics

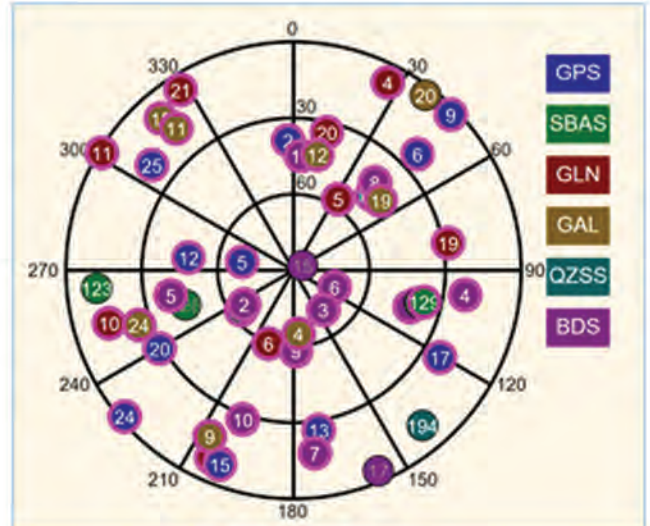
Participants can stay at the AIT Conference Center with a tariff of US\$ 40-50/night/person. Travel time from the Suvarnabhumi International Airport to AIT is usually one hour.

Living cost inside the AIT campus is very reasonable and lunch/dinner cost may vary from 3 USD to 5 USD per meal.

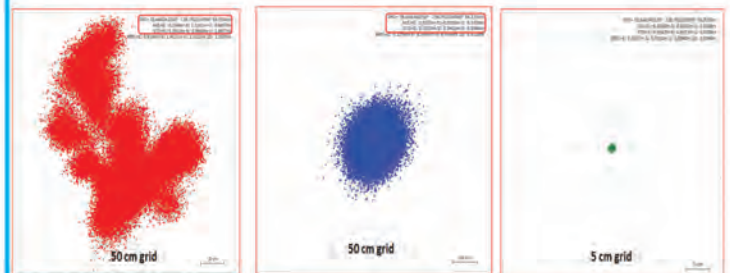
## Insurance

Participants are requested to obtain travel and medical insurance before entering in to Thailand.

**Deadline for Applications :  
2<sup>nd</sup> December, 2019**



Visible Satellites

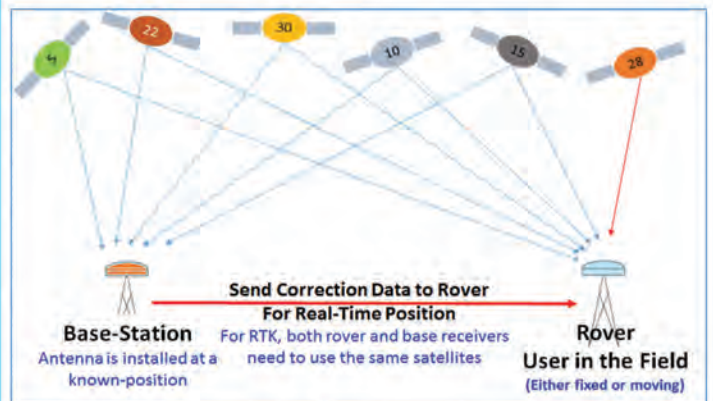


SPP (Single Point Position)

DGPS (Differential GPS)

RTK (Real Time Kinematic)

How to improve 10 m to 10 cm



DGPS Principle