Centre for Space Science and Technology Education in Asia and the Pacific

ANNOUNCES

SECOND INTERNATIONAL TRAINING COURSE

ON

NAVIGATION AND SATELLITE

POSITIONING SYSTEM

JUNE 17, 2013 TO JULY 12, 2013

Conducted at

Space Applications Centre (SAC)
Indian Space Research Organisation (ISRO)
Ahmedabad, INDIA
www.sac.gov.in

CSSTEAP

Centre for Space Science and Technology
Education in Asia and the Pacific (CSSTEAP)
Affiliated to the United Nations
www.cssteap.org

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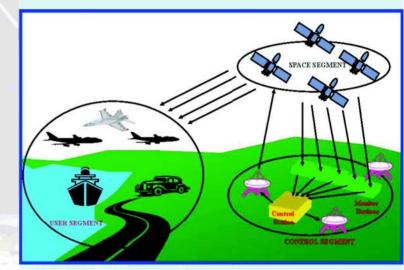**Secretary**
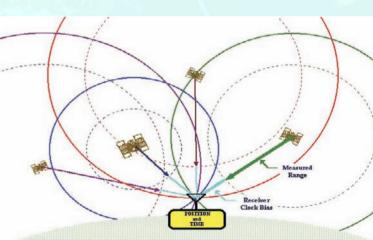
Dr. Y.V.N. Krishna Murthy
Director, CSSTEAP
India

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Background

Today satellite positioning has become a standard, precise and easy way for navigation with development in sensor technology. Satellite positioning has become a necessary part of several operations. Currently the US GPS and Russian GLONASS are the only systems in the Global Navigation Satellite Services (GNSS). Along with this other countries/unions like India, Japan, France and Europe are coming up with their own Satellite Positioning Systems. These initiatives by different countries are likely to increase Satellite Launch Vehicles, signals and their coverage providing higher accuracies even in bad weather conditions. This development along with miniaturization of GNSS receiver has exploded its applications in many fields. Capacity building would be the next step for efficient use of the technology along with other remote sensing techniques for monitoring of various natural resources and for societal development. There has been a large gap between the technology developing and application communities by which efficient use of positioning technology is lagging behind. This gap can be reduced by training the professionals, researchers and user groups at different levels by transferring the state of art technology to application community through capacity building. The awareness of various existing and upcoming positioning systems among the decision makers would be helpful in efficient use of high-end navigation and positioning systems for development of community.

Objectives

- To create an awareness of existing and upcoming satellite positioning technology,
- To expertise researchers and professionals in utilization of latest positioning technology,
- To update on going activities related to the use of GNSS technology,

- To fill the gap between the latest satellite positioning technology and application groups and

- To maximize the benefits of the use and applications of GNSS to support sustainable development.

Who should attend?

The prospective participants should be from the Asia–Pacific region, and should be Post Graduates Science or Graduates in Engineering in a relevant discipline with about 5 years experience in using space technology applications.

The Course is targeted to middle level technology managers, researchers, and professionals working in the domain of GNSS and remote sensing technology and their applications. It is hoped that the concerned Government departments as well as NGOs/stakeholders would benefit from this training course. Others who will find the course very useful include academic institutions, space agencies, and institutions responsible for regional capacity building in the use of space based technology.

Course Duration, Location and Number of Seats

The course will be conducted by CSSTEAP and organized by Space Applications Centre, ISRO, Ahmedabad, India, at its Bopal Campus from June 17, 2013 to July 12, 2013. The number of seats will be limited to 20.

Language

The working language of the course is **English.** Proficiency in written and spoken English is most essential. **The candidates having adequate working knowledge in English only need to apply.**

Course Structure

The structure of the course is a balance between theory and practical exercises. The Training Course schedule will be covered in four modules distributed in four weeks:

Week 1: Introduction to GNSS

- Evolution of Navstar, GPS concept from transit, timation
- GPS signal structure
- GLONASS, Galileo navigation systems
- Coordinate systems and transformation
- Overview of satellite communication

Week 2: GNSS Signals

- Satellite orbital dynamics, GPS orbits
- Satellite & user position algorithms
- GPS signal structure & navigation data
- PRN sequence (C/A & P code generation and their correlation properties)
- Time domain representation of GPS signals GPS signal spectrum and their power level
- Concept of Fourier transform, autocorrelation and cross correlation of GPS signals
- Error sources that effect GPS system performance

Week 3: Differential Positioning

- GLONASS signal modulation
- GPS Augmentation
- Differential GPS concepts
- GPS receiver signal processing

Week 4: GNSS data processing and applications - Scientific and Commercial

- Surveying with GPS
- GNSS applications
- GPS for atmospheric studies, perceptible water vapor
- Applications in aviation: (automation approach and landing using GPS)

- Applications for vehicle tracking
- Location based Services
- Surveying and mapping
- Mobile Mapping
- Earth rotation measurement, seismology (Tectonic plate movement)
- GNSS altimetry

There will be practical exercises with different types of GNSS receivers integrated with communications systems and visits to laboratories at SAC.

Course Fee

A course fee of Indian Rupees (INR) 25,000 (equivalent to US$ 500) is charged. This includes course materials and local tours.

Fellowships to Participants from Countries other than India

Candidates are expected to make their own arrangements for all expenses. Preference will be given to the candidates who are financially (travel and/or fellowship) supported by their organizations or any other funding agency. However, for a few candidates Government of India (GOI) offers financial support. Candidates proposing to avail the GOI financial assistance (INR16,000 per month and to & fro travel support) have to specifically request for the same in the Application Form.

Health and Insurance

Insurance and medical expenses as necessary will have to be borne by candidates or their organization before taking the journey to India. Medical, life and disability insurance should be undertaken before leaving for India by the participants themselves or on their behalf by their organization for covering entire health and disability risks. No medical expenses will be borne by CSSTEAP.

However, participants who receive the Fellowship of the GOI will be paid medical expenses for minor ailments on actual basis (as out-patients only) as and when such expenses are incurred. CSSTEAP will have limited liabilities as far as medical expenses are concerned in such cases.

Accommodation

Accommodation only for the participants will be arranged in a hostel inside the campus (spouse or family members not allowed). Kitchenette facility will be available to the participants only. A sum of INR 1500 per month is to be paid by the participant for the accommodation. Boarding and other expenses are also to be borne by the participants. Indian food can be provided on payment of actual charges for the entire period of the course.

Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP)

In the wake of the need for regional self-reliance and self sustenance in space science and technology in the region of Asia and the Pacific, CSSTEAP came into existence with affiliation to the United Nations in India in 1995. It has been supported by the Department of Space of the Government of India, and is advised by a 16 member international Governing Board. Its activities span across organization of P.G. Courses of 9 months duration in Remote Sensing and GIS, Satellite Communications, Satellite Meteorology and Global Climate, and Space and Atmospheric Science. It also conducts theme specific short courses in all these disciplines. The Centre also encourages and provides support to carryout Master programme. Since its inception, CSSTEAP has trained about 1141 individuals from more than 34 countries of the Asia and the Pacific region and beyond (further details see website: www.cssteap.org).

Space Applications Centre (SAC)

Space Applications Centre (SAC), one of the major centres of the Indian Space Research Organisation, is engaged in the research, development and demonstration of applications of Space Technology in the field of Communications, Remote Sensing, Meteorology, and Satellite Navigation. This includes R&D on onboard systems, ground systems and end user equipment hardware and software. Its achievements include development of communication and meteorological payloads for INSAT and camera payloads for IRS satellites. SAC provides its infrastructure to conduct training courses to the students of CSSTEAP. SAC has three campuses; two are located at Ahmedabad and one is located at Delhi (for further details see website: www.sac.gov.in).

Indian Space Research Organisation (ISRO)

Government of India set up Space Commission and Department of Space (DOS) in June 1972. Indian Space Research Organisation (ISRO) under DOS executes Space programme through its establishments located in different places in India. The prime objective of ISRO is to develop space technology and its application to various national tasks. ISRO has established two major space systems, INSAT for communication, television broadcasting and meteorological services, and Indian Remote Sensing Satellites (IRS) system for resources monitoring and management. ISRO has developed two satellite launch vehicles, PSLV and GSLV, to place INSAT and IRS satellites in the required orbits (for further details see website: www.isro.gov.in).

IMPORTANT NOTE:

1. Interested persons may detach last 4 pages from this brochure and use them as Application Form.

2. It is essential that full passport details are provided in the Application Form.

3. Application Forms without passport details may not be considered.

4. Applicant should attach copies of certificate of

    a. Medical Fitness (in case if any medical information requiring attention is hidden and if found during the course, the centre will be compelled to send the candidate back home at his own cost)

    b. Highest degree obtained (Degree certificate and mark sheet/grade card)

    c. Proficiency in English.

    d. All the degree certificates, if not in English may please be translated in English and attested by the Head of the organization or transcript in English can also be submitted.

5. Mail the completed application form through your Embassy/High Commission in New Delhi, India and also send an advance copy of the application form directly to the following address

6. You will be required to sign an undertaking at the time of registration that you will abide by the conduct rules and regulations of the institute. That in case of the violations of the rules appropriate disciplinary action may be taken by the authorities as deemed appropriately.

To:

Course Director, NAVSAT Positioning System,

Space Applications Centre , ISRO,

Department of Space, Govt. of India,

Ambawadi Vistar P.O.,

AHMEDABAD – 380 015 – Gujarat (INDIA)

Phone   :   (O) +91 – 79 – 2691 2427

Fax   :   +91–79 – 2691 5821, +91-79-26915807

Email   :   cssteapsatcom@sac.isro.gov.in

Website   :   www.cssteap.org

IMPORTANT DATES:

Last date for receipt of Application Form	:	**March 15, 2013**
Information of selection	:	**May 10, 2013**
Commencement of the Training Course	:	**June 17, 2013**
Completion of the Training Course	:	**July 12, 2013**

CSSTEAP

CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION IN
ASIA AND THE PACIFIC
(Affiliated to the United Nations)

APPLICATION FORM FOR

SECOND INTERNATIONAL TRAINING COURSE

ON

NAVIGATION AND SATELLITE POSITIONING SYSTEM

From June 17, 2013 to July 12, 2013

Space Applications Centre

Ahmedabad, India

Last date for receipt of application: March 15, 2013

AFFIX
PASSPORT
SIZE
PHOTOGRAPH

(For office use only)
Application No………..
Date Received…………

(PLEASE TYPE OR USE BLOCK CAPITALS)

1. Name: Mr./Ms./Dr ……………………………………………………………………….…...
(As mentioned in the passport)
2. Father's Name :………………………………… 3. Mother/Husband/Wife Name:………..……

4. Date of Birth (dd/mm/year)………..……… 5. Place of Birth ………………...

6. Gender : Male **/** Female   7. Nationality ………………………………

8   Contact Information: Present official Mailing Address (Please mention valid until what date)
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Contact Telephone number (Please give complete phone numbers with all codes)
Home: ……………………………..………… Office: ……………………………..…………
Fax ……………………………………………… Email: …………………………………………..
Mobile No :

9.   Permanent Home Address (in your country)
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…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………..
Contact Telephone number: (Please give complete phone numbers with all codes)
Telephone: …………………………………………………………………………………..
Fax …………………………………………………………………………………………
Email: (alternate, preferably G-mail or Yahoo)……………………………………………………

10.   Nearest International airport (Specify the place/city):………………………………………………

11. Academic Qualifications

Degree / Diploma	Duration (from to year)	University	Year of Passing Course	Grade / percentage	Major Subjects

* Enclose copies of Degree/Diploma/Certificates/Marks/Grades obtained etc and transcription in English)

Major Subject in last examination:…………………….Area of Specialization …….…………………

Medium of instruction / language …………………….TOEFL Score (Proficiency in English)……….

Proficiency in English (tick whichever is applicable)

Reading	good	average	poor
Writing	good	average	poor
Speaking	good	average	poor

Note :   Enclose certified copies of marks/grade of degree, diploma, TOEFL(Validity period), etc. Certificates and their certified translations in English.

12. Details of Experience of last five years*

Present Position / Designation …………………………………………………………………………

Present Responsibilities ……………………………………………………………………………….

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Organization and Complete Address ……………………………………………………………………

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Date of Joining this Organization(dd/mm/yyyy)…………………………………………………..
*Attach additional sheet giving details of your technical activities during last one year.

13. (a) Activities and projects in which your organization is currently engaged. (Mandatory)

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(b) Main technical/scientific facilities available in your organization

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14. Have you done any other course from CSSTEAP (If yes, please give details including the month & year).

……………………………………………………………………………………………………...……

………………….………………………………………………………………………………...……

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15. Details of Passport

Passport number	Place and country of Issue	Date of Issue	Date of Expiry	Issuing Authority

16. Physical fitness:

a) Are you suffering from any recurring chronic serious disease like HIV, Hepatitis B, Cancer, Yellow fever, etc. or any other communicable disease which may affect your study program in India.

………………………..…………………………………………………………………….
…………………………………………………………………………………………………

b) If yes, please specify nature of illness (Candidates are advised to attach medical fitness certificate from a **government hospital or authorized government doctor on official letter head**).

17. How do you propose to meet the expenses for international travel and stay expenses in India?

………………………………………………………………………………………………......
……………………………………………………………..…………………………………………

18. How do you foresee this Training Course will help you?

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19. Declaration by the candidate

I have read the Announcement brochure and will abide by the rules and regulations of the CSSTEAP. I have made / am making travel arrangements for attending the Training Course and for local expenses for the duration of the Training Course in India.

Date :
Place: Signature of the candidate

Cute Here

20. Sponsoring Agency / Head of the Organization Certificate

Mr. / Ms. …………………………………………… is sponsored by ………………………… to attend the International Training course on Navigation and Satellite Positioning System to be held from June 17, 2013 to July 12, 2013 at Space Applications Centre, ISRO, Ahmedabad, India. We envisage utilizing, his / her experience in specific tasks of our organization / agency.

a) He / She will be / will not be provided international travel support.   ** ☐

b)   He / She will be / will not be provided financial assistance for the period of stay in India. ☐

c) He/ She possesses adequate knowledge of English Language.   ☐

(Mandatory: Please tick appropriate option)

Date: Signature :

Place: Name   :

                                         Designation:

                                         Organisation :

                                         Phone :

                                         Fax   :

                                         Email :

(Official seal of the sponsoring or nominating authority)

Note: Application without official seal of sponsoring or nominating authority and their details will not be considered.

21.   Forwarding note by the respective country's Embassy in India.

This is to forward the application of Mr. /Ms./Dr………………………………………… of ……………………………….. (Specify the country name here) for International Training course on Navigation and Satellite Positioning System to be held from June 17, 2013 to July 12, 2013 at Space Applications Centre, ISRO, Ahmedabad, India.

Date: Signature :

Place: Name   :

                                         Designation:

                                         Phone :

                                         Fax :

(Official seal of the Embassy/High Commission)

Note : Application without official seal of Embassy/High Commission will not be considered.

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CSSTEAP