

ANNOUNCEMENT BROCHURE

8th INTERNATIONAL TRAINING COURSE ON SMALL SATELLITE MISSION

November 25 - December 6, 2019



Jointly Conducted by
U R Rao Satellite Centre (URSC)
ISRO, Department of Space
Government of India, Bengaluru, India
Indian Institute of Remote Sensing (IIRS)
ISRO, Department of Space,
Government of India, Dehradun, India



Organized by
**Centre for Space Science and Technology
Education in Asia and the Pacific (CSSTEAP)**
(Affiliated to the United Nations)
IIRS Campus, 4, Kalidas Road,
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Governing Board Members and Special Invitees during 23rd Governing Board Meeting at Delhi on December 10,2018

Introduction

Space technologies, especially satellites are important instruments for development and progress of humankind. Satellites are used for Earth observation, Communication, Navigation Atmospheric studies, Astronomical observations and Military applications. Satellites provide uninterrupted services with less cost when compared with conventional methods for similar applications. It is evident from the increasing number of satellite launches in recent years. With an increase in the awareness of benefits of earth observation technology for societal applications many countries are integrating space capabilities into their national development programmes.

On one side, operational satellites have become larger and heavier to meet increasing requirements without compromising qualities, and becoming more expensive. Small satellites also have significant role to play in emergent societal appliances. The increase in cost, complex technology, new areas of applications and continuous service requirements restrict the satellite fabrication and launch to only a few, countries or agencies in the world. On the other side, revolution in electronics miniaturization, and invention of smart materials, have reduced the satellite size and mass. Further, the improvements in computation capability of processors, high capacity storage devices, imaging technology, control intelligence and onboard automation and associated performance capability have opened new opportunities to design and fabricate smaller, faster and cheaper: sophisticated 'small' satellites. The reduction in mass and volume reduces the launch as well. The small satellite concept, which provides less turnaround time, affordability and the potential to serve high end applications, has attracted Industries to launch their own satellities. The small satellites are launched as 'piggy-backs' of large satellites, resulting in inexpensive launch cost with more launch

opportunities. More than 500 small satellites (nano, cube, micro and mini satellites) are expected to be launched in the next five years. The U.S. is the most active country in small satellite deployment followed by Europe, Russia, Japan, China and India. Small satellites have attracted attention from both developed and nascent space countries in Asia for two main reasons: National security, and technology acquisition. Other Asia Pacific countries like Indonesia, Bangladesh, Vietnam, Thailand, Sri Lanka and Central Asian countries have also taken initiatives in this direction.

Objectives

- To create awareness about small satellites, space technology and opportunities
- To disseminate knowledge required for small satellites technology
- To sensitize professionals in developing, launching and utilizing the benefits of small satellites
- Exposure to infrastructure required for small satellite development

Who Should Attend?

The course is aimed for decision makers, senior space technologists, managers, researchers and professionals in the fields of space technology.

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 and Location

The course is organised by Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) during November 25 to December 6, 2019 at Indian Institute of Remote Sensing, Dehradun jointly conducted by U R Rao Satellite Centre (URSC) and Indian Institute of Remote Sensing (IIRS).



Golden Jubilee Hostel at IIRS

Language of Course

The language of the course is English. Proficiency in written and spoken English is essential. Candidates with adequate working knowledge in English only need to apply.

Course Structure

The structure of the course is a balance between technical presentations, animation and assignments.

The following course content will be covered :

- Benefits of space technology
- Remote sensing applications
- Technology involved in making small satellites.
- Applications of small satellites and future trends
- Management of small satellites

Course implementation

The course will be conducted at IIRS, located in Dehradun, India through lectures, assignments, quiz, demo, etc.

Course Fee and Accommodation

A course fee of ₹15,000 (equivalent to US\$ 300) is applicable which includes course materials. Accommodation for the participants will be arranged in hostel at IIRS, Dehradun. In addition the participants will have to pay ₹ 100 per day towards accommodation charges.

Indian food will be available in the hostel mess/ canteen managed by officer trainees on payment basis.

Fellowships to Participants

The candidates are required to send their personal details/bio-data to the Course Coordinator, IIRS, Dehradun in the prescribed Application Form, appended to this Announcement Brochure. The candidates are expected to make their own arrangements for all expenses. Preference in admission will be given to the candidates who are financially supported by their organizations. A few fellowships covering to and fro international air travel, domestic travel in India and living expenses (₹ 8,000 for two weeks) in India are available from Government of India. However, first preference will be given to the fully self sponsored candidates and then to the candidates whose sponsoring organization will be bearing international to and fro travel.

Health and Insurance

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.

About CSSTEAP (Affiliated to the United Nations)

The Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), was established in November 1995 in response to the UN General Assembly Resolution 45/72 of the 11th December 1990 endorsing the recommendations of UNISPACE-82, the United Nations Office for Outer Space Affairs (UN OOSA).

The Centre is hosted by the Government of India with Department of Space (DOS) as the nodal agency and is guided by an International Governing Board from 17 countries and observers from two countries. The goal of the Centre is to do capacity building through in-depth education, indigenous



CSSTEAP HQ Dehradun

capability in the Asia-Pacific countries for research and applications in the core disciplines of Remote Sensing & Geographic Information System, Satellite Communications, Satellite Meteorology & Global Climate, Space & Atmospheric Science and Global Navigation Satellite System (GNSS). The educational programs, with course curricula developed by the United Nations, are recognized by Andhra University, Visakhapatnam, India for award of M.Tech degree. About 2139 professionals from 55 countries within and outside the Asia-Pacific region have graduated so far from the centre. For further details you may please visit www.cssteap.org.

CSSTEAP is organizing a 2-week Course for technologists and researchers from Asia-Pacific to share their expertise in the area of small satellites.

About Indian Space Research Organisation

The Government of India had setup Space Commission and Department of Space (DOS) in June 1972. Indian Space Research Organisation (ISRO) under DOS executes space program through its establishments located at different places in India. The prime objective of ISRO is to develop space technology and its applications for the societal benefits.

ISRO has established the following five major space systems with its satellites

- Space communication system: INSAT/GSAT Series
- Earth & Atmospheric observation system; Remote sensing satellites (Resourcesat, AWiFS, Oceansat, Metsat, Cartosat, etc.)
- Regional navigation system; IRNSS satellites
- Planetary Studies system: Chandrayaan-1, Chandrayaan-2 and Mars Orbiter Mission (MOM)
- Astronomical Research Systems: Astrosat and Aditya-L1

Apart from the above, ISRO has also developed its own small satellites. Also, ISRO guides Indian University students in small satellite design, fabrication, testing and operation activities, and also launches their satellites.

Further, ISRO has developed two launch vehicles PSLV and GSLV to LEO and GEP orbits. For further details please visit www.isro.gov.in

About Host Institutes

U R Rao Satellite Centre

The U R Rao Satellite Centre (URSC) in Bengaluru is one of the lead centres of Indian Space Research Organisation, Department of Space and is engaged in developing satellite technology and implementation of satellite systems for scientific, technological and application missions. URSC is functionally organized into eleven major areas: Mechanical Systems Area (MSA) including structures, thermal systems and spacecraft mechanisms; Communication and Power Area (CPA) including communication systems and Power systems; Controls and Digital Area (CDA) covering spacecraft Control system and Digital systems; Sensor Development Area (SDA) including all Attitude sensors; Applied Optics Area (AOA) making Refractive and Reflective optical systems; Integration and Checkout Area (ICA) comprising spacecraft checkout and systems integration; Mission Developing area (MDA) including, Mission planning, flight Dynamic and Navigation systems; Payload Data Management & Space Astronomy Area (PDMSA) including Baseband Data handling system and space

astronomy systems; Management and Information Area(MISA) including Program Planning and Evaluation and Information systems; Components and Material Management Area (CMMA) and Reliability and Quality Area (RQA). Programme Management Groups co-ordinate the implementation of INSAT and IRS Projects. ISRO Satellite Integration and Test Establishment (ISITE) including a Comprehensive Assembly Test and Thermo Vacuum Chamber (CATVAC) provides space environment for qualification of sub-systems and systems.

Indian Institute of Remote Sensing

The hosting Indian Institute of Remote Sensing (IIRS) is a unit of Indian Space Research Organisation, Department of Space, Government of India which was established in 1966. It is the premier training and education institute dealing with Remote Sensing, GeoInformation Science & GNSS Technology and their applications in the region.

The Institute has gained rich experience over the last 53 years in capacity building and implemented many innovative programs tuned to the needs of various target groups. The institute also offers satellite-based distance learning programs for the benefit of university students and faculty.

The technical area of the Institute is organized in 10 departments under three groups. The departments are:

- (i) Photogrammetry & Remote Sensing Department
- (ii) Geoinformatics Department
- (iii) Geoweb services, IT & Distance Learning Department
- (iv) Agriculture & Soils Department
- (v) Forestry & Ecology Department
- (vi) Marine & Atmospheric Sciences Department
- (vii) Urban & Regional Studies Department
- (viii) Water Resources Department
- (ix) Geosciences & Geohazards Department
- (x) Disaster Management Sciences Department.



IIRS, Dehradun



URSC, Bengaluru



CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION
IN ASIA AND THE PACIFIC (CSSTEAP)
(AFFILIATED TO THE UNITED NATIONS)

APPLICATION FORM FOR
**8th INTERNATIONAL TRAINING COURSE ON
SMALL SATELLITE MISSION**

(November 25 - December 6, 2019)

Venue: IIRS, Dehradun, India

Last date for receipt of application: September 15, 2019

Affix recent
passport size
photograph

SSM-8

(For office use only)

Application No.:

Date received:

Important:

All the correspondence from CSSTEAP (issue of admission letter, e-tickets for travel, enquiries, etc) with prospective applicants will be on internet and sometimes on phone (Home/ Office), therefore kindly ensure that email-id, phone, fax, etc, are correctly and clearly mentioned.

(Please type or use CAPITAL LETTERS)

1. Name (Dr/Mr/Mrs/Miss):
First Middle Last
(As mentioned in the Passport)
2. Father's Name: 3. Name of mother/husband/wife:
4. Date of Birth (DD/MM/YYYY): 5. Place of Birth:
6. Gender (Male/Female): 7. Nationality:
8. Contact Information: Present official Address (Valid until what date):
.....
.....
.....
Contact number: (Please give complete Phone No. with country, city codes which will be useful to contact your family members in the case of emergency)
Office (Tel): Office (Fax):
Mobile: E-mail:
9. Permanent home Address (in your country):
.....
.....
.....
Contact number: (Please give complete Phone No. with country, city codes)
Home (Tel): Home (Fax):
E-Mail (alternate, preferably G-mail or Yahoo):
10. Nearest International airport (Specify the place/city):

Important:

- a) Interested persons may detach last 4 pages from this brochure and use them as **Application Form**.
- b) It is essential that full passport details are mentioned in the Application Form or provided to the last at the earliest.
- c) Application Forms without passport details may not be considered, however this information can be added or sent later on also
- d) Providing alternate email-id would ensure timely communication with applicants.
- e) For faster communication with the applicants CSSTEAP Secretariat will be using your email-id for all purposes (e.g. admission letter, air tickets and logistic arrangements).

13. (a) Activities & Projects in which your present organization is engaged (mandatory) and nature of your duties *

.....

(b) Main Scientific/Technical facilities available in your organization *(Including approximate number and type of computers, type of software available etc.)

.....

* If required attach separate sheet.

14. Have you done any other course (short or PG) from CSSTEAP (if 'yes', please give details including theme & year)

.....

15. How this short course on Small Satellite Mission will help you in your work/organization? Please describe below.

.....

16. DETAILS OF PASSPORT : Passport details are essential for selection of candidates and send copy of the passport whenever available. *Indian national need not to provide passport details.

| Passport Number (Personal or Official)* | Place of Issue (City and country) | Date of issue | Passport valid up to | Issuing Authority | Whether previously visited India if so place and date of last visit |
|---|-----------------------------------|---------------|----------------------|-------------------|---|
| | | | | | |

17. PHYSICAL FITNESS

a) Are you suffering from any recurring/chronic/serious communicable disease which may affect your study program in India?

.....

| |
|----------|
| Yes / No |
|----------|

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

18. How do you propose to meet the international/national travel and stay expenses in India? (preference will be given to those who will make their own travel or both travel and stay arrangement himself/herself).

.....

19. Stalking/smoking and drinking of alcohol in the office premise is not permitted. The participants are expected to wear proper and decent dress while in the campus and classroom as well as during field visits and educational tours.

20. The selected candidate need to abide by rules and regulation of the institute and maintain discipline harmony and will not indulge in unlawful activities in campus hostel or during educational and field visits.

21. DECLARATION BY THE CANDIDATE :

I have read the announcement brochure and will abide by the rules and regulations of the Centre. I have made / am making / have not made travel arrangements for attending the course and local expenses for the period of stay in India.

Date :

Place :

Signature of Candidate

22. SPONSORING / NOMINATING AGENCY CERTIFICATE

Dr/Mr./ Ms.working in this organisation is nominated and/or sponsored/ endorsed by (name of ministry department, organisation etc.) to attend the International Short Course on "Small Satellite Mission" to be held at Indian Institute of Remote Sensing, Dehradun, India during November 25 - December 6, 2019. We envisage to utilize his/her experience in specific tasks of our organization / agency. Following statements are mandatory for certification by the sponsorer.

- i. He/She will be/will not be provided international travel support.
 - ii. He/She will be / will not be provided financial assistance for the period of stay in India.
 - iii. He/She possesses adequate knowledge of English Language required for the course.
- (Mandatory: please tick appropriate option)

Date : Signature:

Place : Name in Capital Letters :

Designation:

Phone No. :

Fax No. :

E-mail:

(Official seal of the sponsoring or nominating authority including CSSTEAP GB member)

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

23. FORWARDING NOTE BY THE RESPECTIVE INDIAN EMBASSY HIGH COMMISSION IN YOUR COUNTRY OR YOUR EMBASSY /HIGH COMMISSION IN INDIA.

This is to forward the application of Dr/Mr/ Ms..... of (Specify the Country Name here) for the short course on "Small Satellite Mission" to be held at Indian Institute of Remote Sensing, Dehradun, India during November 25 - December 6, 2019.

Date : Signature :

Place : Name :

Designation :

Phone No. :

Fax No. :

E-mail :

(Official seal of the Embassy / High Commission of India in your country or of your country in India)

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

N.B. Please send an advance copy of the application form duly signed by the sponsoring agency to the **Course Coordinator, (Short Course on Small Satellite Mission) CSSTEAP, IIRS Campus, 4, Kalidas Road, Dehradun-248001, India by Fax (+91-135-274-0785)** for quick processing. Original copy to be sent through Embassy/High Commission of respective country at New Delhi duly signed by the sponsoring or nominating authority.

IMPORTANT

- The application which is not complete in all respects is likely to be rejected.
- **Candidate must attach copies of certificates of**
 - (a) Medical fitness to attend the course including Chest X-ray (PA), Blood Test (including Random Blood Sugar, HIV, Pregnancy HBs, Ag, Urine complete) (in case 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 the cost of nominating agency or the candidate.
 - b) Expecting mothers are advised not to apply for the course.
 - c) Stalking/smoking and consuming alcoholic drinks in class room and office campus is prohibited.
 - d) Proof of Proficiency in English needs to be provided or **certificate by the nominating agency is to be provided.**
 - e) Attach copy of Highest degree obtained (Degree certificate and marks sheet/grade card)
 - f) Attach copy of All 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 and authenticated appropriately.

About Dehradun

Dehradun, the capital of Uttarakhand state, is located in one of the outer valleys of Himalaya in Northern India. The valley is surrounded by dense forest and provides pristine environment for academic pursuits. World famous Rajaji National Park, famous for Tigers, Elephants etc. is located adjacent to the city. Dehradun is well connected by air, train and road from Delhi, the national capital. IIRS campus is about 6 km from railway station and about 30 km from airport. Many important national organizations/ institutions are located here. Mussoorie, the famous hill station, is about 30 km from

Dehradun. Haridwar and Rishikesh, the two famous pilgrim centers, are about 55 km and 40 km, respectively from Dehradun. Weather of Dehradun during November - December is usually cold.

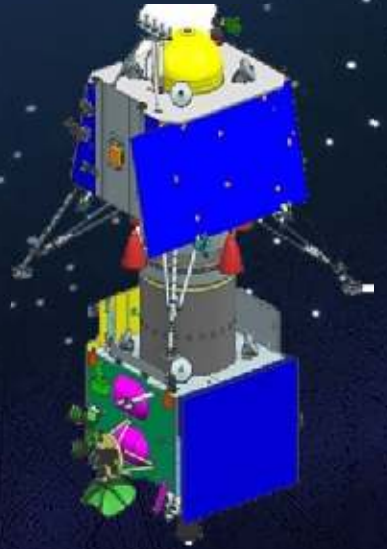
Important Dates

- Last date for receipt of application : Sept. 15, 2019
- Information of selection: October 2nd Week 2019
- Commencement of the course: Nov. 25, 2019
- Completion of the course: Dec. 06, 2019

Selected participants will be intimated by email and a formal letter.



SSM 2018 course participants in classroom



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