



**Centre for Space Science and Technology
Education in Asia and the Pacific (CSSTEAP)**
(Affiliated to the United Nations)
IIRS Campus, 4, Kalidas Road, Dehradun, India
www.cssteapun.org

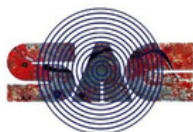
Space Applications Centre (SAC)
Indian Space Research Organisation (ISRO),
Department of Space, Government of India
Ahmedabad, India
www.sac.gov.in

**CSSTEAP Short Course
on
“Space based Observations for
Coastal Sciences and Applications”**

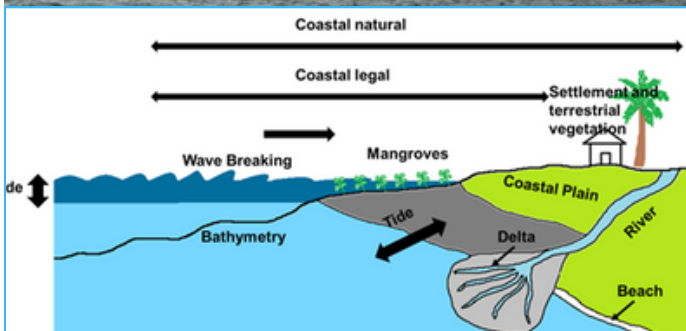
(28 April-09 May, 2025)



**Organized By
CSSTEAP**



**Conducted By
SAC, ISRO**



Background

The coastal landforms are one of the most dynamic interfaces on the earth between land and sea that support some of the most diverse and productive habitats. The coastal zone undergoes relentless modification under external natural and anthropogenic influences. The anticipated sea level rise, increase in wave activities and expected increase in the frequency and intensity of tropical cyclones are likely to have an adverse impact on the coastal zone. Geo-informatics is an inevitable tool for mapping and monitoring the coastal zone.

About CSSTEAP and SAC

CSSTEAP was established in India in November 1995 with its headquarters at Dehradun and over the years, the centre has emerged as a Centre of Excellence in capacity building in the field of space science and technology applications. For more information, visit www.cssteapun.org.

The Space Applications Centre (SAC), located in Ahmedabad, India, is one of the major centres of the Indian Space Research Organization (ISRO). This centre is engaged in the research and development of applications of Space Technology in the fields of Communications, Remote Sensing, Meteorology, Planetary science and Satellite Navigation.

It has major contribution to the recent Chandrayaan-3 mission, which demonstrated a soft landing on the moon. The other achievements of the centre include the development of communication, navigation and meteorological payloads and designing various applications. SAC provides its infrastructure to conduct training courses for the students of CSSTEAP and will be the host centre for this course. For more information on SAC, visit www.sac.gov.in.

Objective of the course

The overall objective of the two weeks training course is to generate awareness among users/researchers /

professional, decision-makers /academicians on the basics of coastal processes primarily based on Geo-informatics.

The participants will be familiarized with the following topics during lecture sessions: (i) basics of coastal processes (ii) coastal geomorphology (iii) coastal zone management (iv) coastal ecosystem (v) coastal zone dynamics (iv) interaction between the coastal ocean waters, geomorphology and ecosystem (v) modelling techniques to study the coastal processes (vi) Geo-spatial tools in monitoring coastal zone and methods involved in geophysical parameter retrieval (vii) impact of climate change in the coastal area and coastal vulnerabilities (viii) anthropogenic influences and coastal pollution. During hands-on sessions, the participants will also be familiarized with satellite data and Geo-spatial tools for coastal processes and modelling using numerical methods.

Faculty

The core faculty is drawn from SAC, universities, and premier agencies from India and abroad. The faculty has rich experience in the field of coastal sciences and applications based on space-based observations. They also have a strong research interest in the field and have several publications in peer-reviewed journals to their credit. They have also experience in delivering lectures in national/international scientific programs.

Medium of Instruction

The medium of instruction shall be in English. Applicants who are not proficient in English are advised not to apply. Those, who have done their higher studies in a medium (language) other than English, are required to submit TOEFL score or a diploma/certificate of English language issued by an accredited language institution or by the local UNDP for satisfactory establishment of the applicant's competence in spoken and written English language. Preference will be given to those who secure high scores in the TOEFL examination. Nominating agencies are requested to ensure this.

The Content of the Course for Coastal Applications mainly focuses on:

Introduction to Coastal Processes & Geomorphology

- Introduction to coastal processes, ecosystem and geomorphology
- Introduction to Coastal zone management

Remote Sensing Principles, Sensors, Retrieval, CAL-VAL and Applications

- Basics of Satellite Remote Sensing & GIS
- Satellite Oceanography – Sensors & Applications for coastal zone
- Fundamentals of geophysical parameter retrieval
- Calibration/validation for coastal parameters
- Integrated RS & GIS applications in Coastal zone monitoring

Optical Remote Sensing

- Retrieval of ocean color parameters
- Optical Remote Sensing for Water quality, Potential fishery zone identification, Bathymetry estimation, Mangroves and other applications

Active Microwave Remote Sensing

- Satellite Altimetry – Retrieval of wind, wave & sea level
- Altimetry applications for sea level rise and extreme wave analysis
- Synthetic Aperture Radar – Retrieval of ocean parameters
- SAR applications for oil spill & internal waves

Thermal Remote Sensing

- Basic principles of thermal remote sensing and SST retrieval from IR & Microwave
- SST Applications – PFZ, SDG, Marine Heat wave, Coral bleaching etc

Coastal Ecosystem Monitoring & Coastal Zone Management

- Satellite based Coastal ecosystem monitoring
- Marine and coastal pollution hazard using satellite data
- Renewable energy from space based observations
- Shoreline change analysis

Space-based observations & Numerical modelling

- Numerical modelling of coastal and oceanographic processes

- **Modelling Coastal Hazards and Disasters**
- **(Storm surge, Tsunami, Coastal erosion, Coastal inundation)**
- **Sea level rise and coastal impacts**

Integrated Geo-spatial tools in Coastal zone monitoring
ISRO Web portals – Data Archival & Dissemination

Course Fee and Accommodation

A course fee of US \$300 (equivalent to INR for Indian participants) is applicable which includes course materials. Accommodation for the participants will be arranged in the International hostel at SAC Bopal, Ahmedabad in twin sharing. During the stay in hostel, the participants will be charged Rs. 120/day . However, for government sponsored candidates from Asia Pacific region, the Director CSSTEAP may waive off the course fee. 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. The course fee may be sent through online transfer/ NEFT/RTGS/SWIFT in favour of CSSTEAP, payable at Dehradun with the following bank details:

Banking Institution: Punjab National Bank
Account Name: Centre for Space Science and Technology Education in Asia and the Pacific
Account Number: 0111032100000236
SWIFT: PUNBINBDPR
IFSC Code: PUNB0445600
Address Bank: Survey of India Branch, New Cantt. Road, Dehradun, India

Fellowship to Participants

A few fellowships covering to and fro international air travel, domestic travel in India and living expenses (INR 15,500 for two weeks) in India are available from the 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.

Insurance

Medical, life, and disability insurance should be undertaken before leaving their country for India by the participants themselves or on their behalf by their sponsoring institute/organization for covering entire health and disability risks. No medical expenses will be borne by the Centre. Candidates in sound physical and mental health only need to apply.

Medical fitness certificate from Authorized Government medical officer covering status of Eye, Chest (Tuberculosis), Vaccinations, heart, lungs, liver, spleen, Hydrocele, skin & V.D., Hepatitis, HIV, Yellow fever and other contagious diseases be enclosed with the application form. In case if any information requiring medical attention is hidden and if found during the course, the Centre will be obliged to send the candidate back to their home country any time. The travel cost will be borne either by the nominating/sponsoring authority or by the candidates themselves.

Eligibility and Selection Procedure

- The course is aimed at decision-makers, managers, researchers, and professionals in the field of coastal zone studies.
- Limited seats are available for this course, which will be filled with participants from different Asia Pacific countries.
- The Candidate should have 5 years of experience in the relevant field.
- Five paid seats are available for Private & Self sponsored candidates from different Asia Pacific countries. The candidates have to pay full course fee of US\$ 300 (equivalent to INR for Indian participant) which includes course materials and field trips. Travel from place of work to Ahmedabad and back, tour allowance and daily allowance during the entire period of training will be borne by the candidate/ organization.
- Government employees and professionals working in the field of coastal zone management would be given priority.

- Candidates who have obtained a degree in Marine science will be given preference
- Candidate should have proficiency in the English language as the course will be conducted in English.
- The selection of candidates will be carried out by a designated selection committee.
- The language of the course is English.

How to Apply

Eligible candidates can apply online through the CSSTEAP website. Applicants are requested to send the application forwarded by the Head of their respective institute/ Organisation for consideration.

<https://admissions.cssteapun.org>

Announcement of course: January 24, 2025

Last date for receipt of application: February 14, 2025

Offline and incomplete applications will not be considered for selection.

The application should be completed in all respects and accompanied by attested and/or certified copies of all the certificates (School, Bachelor and Master, TOEFL, English proficiency, 5 years experience certificate, etc.). Wherever, if these certificates are issued in a language other than English, then the same must be translated in English and certified by the Head of the organization Department or provide English transcription of all such documents.

Note: Candidate is required to upload sponsoring/nominating agency certificate with official seal, and/or forwarded by Governing Board member of CSSTEAP in your country (for list of Governing Board member please refer www.cssteapun.org) to the Indian Mission/ High Commission in your respective country through your country's Embassy/High Commission in New Delhi, India for further processing. Indian applicants need not to send through GB Member.

Contact Details

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Course Director

CSSTEAP (SATMET)

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