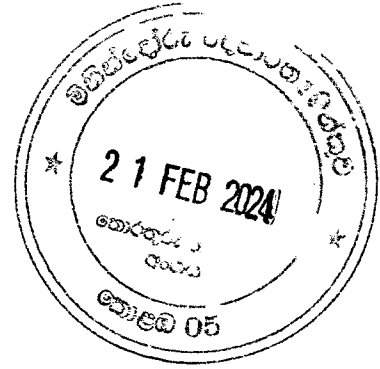


My no: 10028/MDTU/FT/2024/01/01
Management Development & Training Branch,
2024.02. 19



Deputy Surveyor General (IT),

Calling application for foreign courses

Please be good enough to publish the following course details in our website with the broacher attached herewith.

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

I. 28th Post Graduate Course on Remote Sensing and Geographic information System.

(Please submit the request letter with a CV" to MDTU branch through the proper channel on or before February 29th 2024").

II. 14th Post Graduate course in Satellite Communications Course.

III. 05th Post Graduate course in Global Navigation Satellite System Course.

(Please submit the request letter with a CV" to MDTU branch through the proper channel on or before March 28th 2024").

03. Please "Refer the Brochure for more details. Invite all of officers who are interested in this, with 05 years of permanent service in Survey Department."

.....
W.Sudath L.C.Perera
Survey General

W. Sudath L.C. Perera
Surveyor General
Surveyor General's Office
Colombo 05.

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

ANNOUNCES

**28TH
PG COURSE IN RS & GIS**

ACADEMIC YEAR

2024-2025

CONDUCTED AT

Indian Institute of Remote Sensing (IIRS)

Indian Space Research Organization (ISRO)

Department of Space, Government of India,

4 Kalidas Road,

Dehradun, India - 248001

www.iirs.gov.in | www.cssteapun.org



Governing Board Members and Special Invitees during 28th Governing Board Meeting held on December 12, 2023

Governing Board Members

Chairman
Shri S. Somanath
India

Members

Mr. Azizur Rahman
Bangladesh

Dr. Hong Yong IL
DPR Korea

Prof. Dr. Erna Sri Adiningsih
Indonesia

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Iran

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Kazakhstan

Prof. Abdykalykov Akymbek
Abdykalykovich
Kyrgyz Republic

H.E. (Mr.) Dato Muzafar Shah
Mustafa
Malaysia

Prof Budeebazar Avid
Mongolia

Dr. Kyi Thwin
Myanmar

Ms. Marlene Inemwin Moses
Nauru

Mr. Revati Raman Paudel
Nepal

H.E. (Mr.) John Boitte C.Santos
Philippines

H.E. Mr. Vahagn Afyan
Republic of Armenia

Dr. In Sang Moon
Republic of Korea

Eng. S. Panawennage
Sri Lanka

Dr. Pakorn Apaphant
Thailand

Dr. Kamol M. Muminov
Uzbekistan

Observers

Dr. Aarti Holla-Maini
UN-OOSA

Prof. Dr. Freek Van der Meer
ITC (The Netherlands)

Secretary

Dr. Raghavendra Pratap Singh
Director, CSSTEAP, India

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CSSTEAP Headquarters at Dehradun

INTRODUCTION

Space science and technology plays a very important role in improving the quality of life of today's human society for information and decision making. Most noticeable among these are communication, television, telemedicine, satellite navigation, remote sensing data, weather forecasting, disaster mitigation through emergency mapping, etc. All countries, irrespective of rich or poor, have realised the importance of space technology for improving the living conditions of their citizens. Therefore, all countries should have access to space technology and must share the equitable benefits. The global satellite data availability has made it possible for all countries to get benefits. However, a major precondition to successful space technology applications is the development of essential indigenous capabilities, particularly human resources. A consensus emerged within the international community that if effective assimilation and appropriate application of space technology are to succeed in the developing countries, efforts must be made at different levels for capacity building in space technology. Towards this, the United Nations General Assembly called for the establishment of Regional Centres for Space Science and Technology Education at the regional level in the developing countries. Under the auspices of the United Nations, through its Office for Outer Space Affairs (UN-OOSA), the six regional Centres established are: Asia and the Pacific (India), Latin America and the Caribbean (Brazil and Mexico) Africa (Morocco and Nigeria), West Asia (Jordan) and Regional Centre for Space Science & Technology in Asia and the Pacific (China). All the Centres are affiliated to the United Nations through UN-OOSA.

ABOUT REGIONAL CENTRE FOR ASIA AND THE PACIFIC IN INDIA

The Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) was established in India in November 1995 with its headquarters in Dehradun and is considered as the Centre of Excellence by UN-OOSA. The 1st campus of the centre was established in Dehradun, India at Indian Institute of Remote Sensing (IIRS) which is a unit of Indian Space Research Organization (ISRO), Government of India. The Centre has arrangements for conducting long and short term courses with IIRS, Dehradun for RS & GIS course; Space Applications Centre (SAC), Ahmedabad for Satellite Communication (SATCOM), Satellite Meteorology and Global Climate (SATMET) and Global Navigation Satellite System (GNSS) and Navigation and Satellite Positioning Systems (NAVSAT); with Physical Research Laboratory (PRL), Ahmedabad for Space & Atmospheric Science (SAS) course and UR Rao Satellite Centre (URSC), Bengaluru for Small Satellite Mission (SSM) and National Remote Sensing Centre (NRSC), Hyderabad for data acquisition and data processing.

The Centre has been imparting training and education, helping participants in developing research skills through its Master Degree, Post Graduate and Certificate programmes. This is achieved through rigorous class-room (theory and hands on exercises), group discussions, field campaigns and pilot projects in the field of space science and technology. These programmes aim at capacity building for participating countries, in designing and implementing space-based research information and application programmes. The Centre also fosters continuing education to its alumni.

"It is emphasized that the overall mission of the centre is to assist participating countries in developing and enhancing the knowledge and skills of their citizens in relevant aspects of space science and technology in order that such individuals can effectively contribute to national development programmes".

AFFILIATION TO THE UNITED NATIONS

The Centre has entered into a cooperative agreement with the United Nations which states that the United Nations will cooperate with the Centre by providing expert advice, educational curricula, technical support, necessary documentation and other appropriate support.

EDUCATIONAL PROGRAMME AND COURSES

The educational programme of the Centre is oriented towards the dissemination of knowledge in relevant aspects of space science and technology. The emphasis of the Centre is to deliberate on education and research for natural resource management along with linkages to the global programmes/databases, pilot studies, continuing education & awareness and appraisal programmes. The curriculum has been developed under the auspices of the UN Office for Outer Space Affairs (UN-OOSA) and the guidelines emerged from the meetings held for Education Curriculum Development for the Centre at Granada, Spain in February/March 1995. These curricula are reviewed periodically by an International Advisory Committee. The activities of the Centre are guided by a Governing Board, Academic Advisory Committee and respective Board of Studies.

ACADEMIC ACTIVITIES

The academic activity is divided into two phases. Phase-I is of 9 months duration and executed at the Centre in India. After successful completion of the Phase-I, the participants are encouraged to take up Phase-II research project of one year duration in their home country. Phase-II allows participants to take up research project relevant to their home country or organization and apply the technologies.

If desired by the candidate the candidate can submit one-year research project to Andhra University, Visakhapatnam, India for Master of Technology Degree (M. Tech. Degree). The eligibility criteria of the university will apply.

(i) **Post Graduate programme:** P.G. Diploma Courses of nine months duration are organized in the following disciplines:

- Remote Sensing and Geographic Information System (RS and GIS) (at IIRS, Dehradun)
- Satellite Communications (SATCOM) (at SAC, Ahmedabad)
- Satellite Meteorology and Global Climate (SATMET) (at SAC, Ahmedabad)
- Space and Atmospheric Sciences (SAS) (at PRL, Ahmedabad)
- Global Navigation Satellite Systems (GNSS) (at SAC Ahmedabad)

Core Modules (Semester I and II) emphasize on the development and enrichment of the basic knowledge and skills of the participants in the technology. This is followed by pilot study, which provides an opportunity to fine-tune the skills for executing theme-based study.

(ii) **Master programme:** This programme gives an opportunity and continuity in developing higher research skills for those who have completed successfully the nine months P.G. Course. This is subject to qualifying for admission requirements of Andhra University, India. A research project by the scholars is conducted and executed in their respective countries with a view to transfer the technology in his/her organization. It will also be a test of the



Participants of 27th RSGIS in the campus

RECOGNITION OF MASTER PROGRAMME

The Centre is in agreement with Andhra University (est. 1926) Vishakhapatnam, India for award of M. Tech. Degree. The terms and conditions of this agreement are reviewed from time to time.

methodology and knowledge assimilated during Phase-I at the Centre.

A few meritorious students after successful completion of P.G. Course are considered for award of additional fellowship of five months to one year to complete part of their research work at Centre's host institutions in India which may lead to a M. Tech. Degree of Andhra University. Research project work needs to be submitted to the Andhra University within four years from the date of registration at the Centre for award of M.Tech. degree.

(iii) **Short Courses:** Besides P.G. level courses, the Centre also conducts short term courses of two to four weeks' duration in specific themes of above subjects regularly.

PROGRAMMES CONDUCTED

The Centre has so far conducted 67 post graduate courses, 26 RS&GIS, 13 in SATCOM, 12 each in SATMET and SAS and 4 GNSS courses. Currently 27th RS&GIS course at IIRS Dehradun, 13th SATMET course at SAC, Ahmedabad and 13th SAS course at PRL Ahmedabad are in progress. The Centre also conducted various short courses in specific themes. More than 3600 participants from Asia Pacific Region and 26 countries from outside Asia-Pacific region are benefited from these courses.

NEXT COURSE: 28th P. G. COURSE IN RS & GIS

Duration	: July 1, 2024 to March 31, 2025
Venue	: Indian Institute of Remote Sensing Indian Space Research Organization Department of Space, Govt. of India Dehradun - 248 001. Uttarakhand, INDIA
Number of seats	: 20 : 05 Additional paid seats

IMPORTANT DATES

Last date for receipt of applications	: March 31, 2024
Information of selection	: April 30, 2024
Commencement of course	: July 01, 2024
Completion of PG diploma (Phase-I)	: March 31, 2025

WHO CAN APPLY?

The course is designed towards the professionals and specialists working in the university system, educational institutes, and involved in active research in Natural Resources (biological and physical) and Environmental management. It is strongly expected that the participating scholars will be able to:

- Serve as catalysts for furthering the skills and knowledge of other professionals in their countries.
- Contribute to policy making, planning, development and management of Remote Sensing & GIS and its applications in their countries.
- Enhance the self-reliance of their countries so as to lessen dependence on external experts.



CSSTEAP RS & GIS Participants attending classes

HOW TO APPLY?

Applications are invited from candidates in countries of Asia and the Pacific Region for the 28th P.G. Course in RS and GIS (www.cssteapun.org). All the candidates need to be either nominated or sponsored (i.e. endorsed) by recognized institutions (e.g. departments, ministries or universities in their respective countries). Nominating or Sponsoring institutions/ authority should ensure that on return, the scholar will be given an opportunity to work in a development oriented activity in the area of newly acquired knowledge and skills. The execution of a one-year project work in their respective countries is the beginning of this process and it is assumed that sponsoring authority will facilitate one-year research project in the home country. However, the Centre will provide long distance technical guidance. A limited number of short (4-6 months) and one-year duration fellowships may be made available to meritorious participants to complete Phase-II Research Project work in India.

Please fill up the **ONLINE APPLICATION FORM** available at CSSTEAP website (www.cssteapun.org). **Offline applications will not be considered.**

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 or through your country's Embassy/High Commission in New Delhi, India for further processing.

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, 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. However, an advance copy may be forwarded at the following address for advance action and follow-up at this end:

Since the medium of instruction is English, therefore, the writing/ reading/speaking knowledge of English is mandatory. **Nominating/ sponsoring agency may kindly note and ensure above condition before forwarding the application.** On arrival in India if the candidate is unable to communicate in English, the candidate will be sent back to his/her country either at the cost of nominating agency or the candidate himself/ herself.

Know more about CSSTEAP, its past and future programmes, list of participants and countries who have benefitted from these and the Pilot Projects carried out through these programmes, please visit us at www.cssteapun.org



International hostel for course participants at IIRS Dehradun

ELIGIBILITY FOR ADMISSION

Master's degree in science or Bachelor's degree in engineering or equivalent qualification relevant in the field of study with at least 5 years of experience in teaching/research or professional experience in the field of natural resources or environment, e.g. agriculture, soils, forestry, ecology, geosciences, water resources, human settlement, land use planning, oceanography, environmental analysis, etc. (For candidates with higher qualifications, the minimum experience may be relaxed). High School-level knowledge in mathematics and/or statistics is essential besides the Master degree as base qualification.

Important

The applicants are advised to bring original documents including academic testimonials for verification at the time of reporting in India.

SELECTION PROCEDURE

The Centre will select the candidates through a well laid procedure, which includes satisfying academic eligibility, proficiency in English language, funding/forwarding by sponsoring authority/organization, country representation, etc. Only selected candidates will be intimated by 30th April 2024. Preference in selection will be given to those candidates whose expenses are borne by the candidate/sponsoring agency. Once a candidate has been sponsored and admitted, the sponsoring authority/organization or candidate need to inform at least 15 days in advance for withdrawal or cancellation of the candidature. If the sponsoring authority wishes to call back its candidate for any unknown reasons after joining the Centre or in the middle of the course, the to and fro travel cost need to borne by either sponsoring authority or by the candidate itself.

ABOUT HOST INSTITUTE

ISRO is a premier government organization in India for space science and technology missions and developments. ISRO is premier agency for the development Earth Observation and Communication satellites, launch vehicles, etc. Moon and Mars mission are noteworthy amongst several achievements. IIRS (est. 1966) is a unit of Indian Space Research Organization, Department of Space, Government of India and is mandated for education/training in Remote Sensing, Geoinformation Science and GPS technologies. It is a premier institution in imparting training and education in basic technologies and their applications for natural resource management. The institute has very strong R&D programme. The endeavor of the institute has been to bring young, middle as well as senior thematic experts from user communities to educate/apprise about technology/applications at Post Graduate level with the overall goal of 'technology transfer' and user awareness. The institute has evolved many programmes tuned to the different needs of various target groups. IIRS addresses the cause, awareness and research needs at different levels of management, and therefore, conducts a variety of courses for the different categories of users and fresh students viz., M. Tech., M.Sc., PG Diploma, 2 months National Natural Resource Management System (NNRMS) sponsored courses for University faculty, 2 weeks on demand Special Courses, 1-week duration Overview Course for Decision Makers and tailor-made courses for users departments from India and abroad. IIRS has so far trained more than 14,440 trainees. More than 1547 foreign students from various countries of Asia, Africa and Latin America have also benefitted under SHARES Fellowship programme of the Department of Space, ITEC / SCAAP fellowship scheme of the Ministry of External Affairs,



Indian Institute of Remote Sensing (IIRS) Campus, Dehradun

Government of India, other fellowship schemes, etc. For further details visit www.iirs.gov.in

FACULTY

Centre's core faculty is drawn from IIRS and also from other centers of ISRO/DOS, universities and premier agencies from India and abroad. They have long and varied experience in the field of RS & GIS technology and its applications. The faculty has a strong scientific background with a number of research publications, experience of participating in international scientific programmes, organizing a number of courses, etc. to their credit. A few visiting international experts are also invited to deliver lectures on advance and specialized topics. Experts from USA, UK, The Netherlands, Germany, Thailand, Australia, Japan, UN-OOSA, UN-ESCAP, UN-SPIDER etc. have delivered lectures.

MEDIUM OF INSTRUCTIONS

The medium of the instructions/teaching is English. Proficiency in written and spoken English is most essential. **The candidates who are not proficient in English are advised not to apply.** Applicants, 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 score in TOEFL examination. **Nominating agencies are requested to ensure this.**

TEACHING METHODS AND FACILITIES

Modern facilities exist at the Centre for class-room teaching and practical instructions/demonstrations. Printed as well as digital course material of the lectures is supplied. The teaching methods include class room lectures, video lectures, computer based training packages, laboratory experiments, group discussions, demonstrations, seminar presentations and field work/case studies (as applicable). Computer-based interactive multimedia packages are also available for self-learning/revision. The laboratories are equipped with latest Image processing and GIS software. Each participant is given individual computer system. One of the major strengths of the institute is its library with latest subject literature, text books, e-books, online-journals, etc.

TECHNICAL & EDUCATIONAL VISITS

As a part of the course curriculum, the participants will have the opportunity to visit different centers of ISRO / Dept. of Space, Govt. of India and other organizations concerned with Remote Sensing and GIS related research.

PERFORMANCE EVALUATION

The performance of the participants is assessed through written, interactive-sessions and/or computer-assisted practical exercises. Independent assessments of theory and practical exams are conducted by external and internal faculty. The participants need to pass each examination paper. Participants, who fail to qualify in the examinations in the nine months' course, may be considered for award of only a **"Certificate of Attendance"** by the Centre.

AWARD OF DIPLOMA/DEGREE

On successful completion of the Phase-I study, i.e. nine-months course, the participants will be awarded Post Graduate Diploma. Certificate of Attendance will be given to the candidates who fail to clear the examination. If the participant is able to complete Phase-II project work, i.e. research project in home country satisfactorily within four

CSSTEAP



CSSTEAP participants at IIRS Campus

years of joining the PG course, the candidate can avail the opportunity to submit the work to the Andhra University (India) for award of M. Tech. Degree.

COURSE EXPENSES

The overall expenses of the course are given below. This does not include international travel (to and from the city of the course participant to course venue):

- Course Fee : US \$ 6000 per participant
- Local tours : US \$ 750 per participant (As per actuals)
- Living expenses : US \$ 2000 per participant (As per actuals)

The participants are expected to find suitable sponsorships or funding for meeting the expenses while attending the course in India. Preference will be given to such candidates.

FINANCIAL ASSISTANCE

To encourage the participants from the Asia-Pacific region, course fees along with expenses for local tour will be waived off and sustenance allowance will also be provided to selected participants as given below:

- Living expenses in India : INR 31,000 per month for the duration of 9 months.
- Book allowance : INR 2,000 (one time)
- Project allowance : INR 1,500 (one time)
- Local tours : INR 50,000 (as per actuals)

SUPPORT FROM UN-ESCAP

UN-ESCAP has been providing financial assistance to CSSTEAP educational programmes and has extended travel grants to a good number of course participants since its inception. This contribution by UN Agencies is highly supportive to the overall activities of the Centre.

The Centre may offer help to obtain financial assistance for international travel for a limited number of participants of the Asia-Pacific region through agencies like UN Office for Outer Space Affairs (UN-OOSA), UN Economic and Social Commission for Asia and the Pacific (UN-ESCAP).

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. However, participants who receive the Fellowship of the GOI will be paid medical expenses for minor ailments on actual basis (as an out patients only) as and when such expenses are incurred. The Centre will have limited liabilities as far as medical expenses are concerned in such cases. 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 home any time. The travel cost will be borne either the nominating/sponsoring authority or by the candidate itself.



CSSTEAP participants in GIS Lab

It is mandatory for all the course participants to stay in the Centre's hostel situated in the IIRS Campus. This gives an opportunity for participants to interact and share their knowledge and cultural values. Accommodation on single occupancy basis is provided to all the selected participants. The campus is equipped with good living facilities, like independent kitchenette, gymnasium, tennis court, etc. A sum of INR 1500/-per month is to be paid by the participant towards the accommodation. Boarding and other expenses towards consumables are to be borne by the participants themselves. Since India is country of festivals, unique socio-cultural values, religions, languages, etc. the participants would get to know about different colorful festivals throughout the year.

RS&GIS COURSE AT A GLANCE

Phase-1 of RS and GIS course is divided into two Semesters:

- Semester-I consisting of Module-1 is of four months' duration. Module-1 covers topics like Remote Sensing, Geoinformatics, Digital Image Processing, Photogrammetry, and Natural Resources Management. This module has several field visits for participants to explain the concepts and deeper understanding of the subject. The students also have to make a seminar presentation. Participants are also taken for educational visits to various scientific organizations. The participants are also evaluated through internal and semester end examination.
- Semester-II consisting of Modules-2 & 3 of five months duration. Module-2 is for two months duration whereas Module-3 is of three months duration. In module-2 the participants are required to study two compulsory papers and opt for two elective papers. Two compulsory papers focus on advanced topics of Remote Sensing (Hyperspectral Remote Sensing, Hyperspectral Data Classification and Application, Microwave Remote Sensing, SAR Data Processing and Change Detection) & GIS technology (Spatial Database Design, Storage and Retrieval, Basics of Programming Language and Data structures, Web GIS and open platforms for geoprocessing, Overview of ML and Spatial Sampling and Variogram Modelling). In addition to the two compulsory papers two elective papers (Elective-1 and Elective-2) also have to be opted based on participants expertise. Elective-1 paper consists of themes like Agricultural & Soil Resource Management, Forest Resource & Ecosystem Analysis, Urban & Regional Studies and Advances in Image Analysis & Geoinformatics. Elective-2 papers consist of themes like Satellite Hydrology & Water Resource Management, Geological Remote Sensing, Marine and Atmospheric Remote Sensing Natural hazards and Disaster Risk Management. The participants are taken for field visits and also evaluated through internal and semester end examination.
- In Module-3 participants are required to work on a three months pilot project pertaining to their field of expertise under the guidance of faculty. The main components of the pilot project study are given below:
 - ♦ Pilot project in the domain of Remote Sensing and GIS Technology applications in Natural Resources and Environment Management Planning and design of the project



CSSTEAP participants in the Library

RS&GIS Syllabus Overview

Semester-I (Module-1): Compulsory
Remote Sensing- I <ul style="list-style-type: none"> ▪ Physics of Remote Sensing ▪ Spectral Signature, In-situ measurements and Visual image interpretation ▪ Platforms & Sensors ▪ Remote Sensing Data Errors, Data Products and their sources ▪ Principles of Thermal Remote Sensing
Image Interpretation and Analysis <ul style="list-style-type: none"> ▪ Statistics for Image Processing ▪ Image Pre-processing ▪ Image Enhancement ▪ Image Transforms & Fusion ▪ Image Classification
Photogrammetry <ul style="list-style-type: none"> ▪ Aerial Photography ▪ Stereo Photographs & its Geometry ▪ Stereo Photogrammetry ▪ Digital Photogrammetry ▪ Satellite Photogrammetry
Geoinformatics-I <ul style="list-style-type: none"> ▪ Overview of GIS, Geodesy ▪ Data models, and Data Quality ▪ Spatial Data Analysis ▪ GNSS and Its Applications ▪ SDI and Recent trends in GIS
Natural Resource & Environmental Management (NREM) <ul style="list-style-type: none"> ▪ NREM-1 ▪ NREM-2 ▪ NREM-3 ▪ NREM-4 ▪ NREM-5
Study Tour
Field Visits
Seminar Presentation
Semester End Examination

Semester-II Module-2
Remote Sensing– II <ul style="list-style-type: none"> ▪ Hyperspectral Remote Sensing ▪ Hyperspectral Data Classification and Application ▪ Microwave Remote Sensing ▪ SAR Data Processing ▪ Change Detection
Geoinformatics-II <ul style="list-style-type: none"> ▪ Spatial Database Design, Storage and Retrieval ▪ Basics of Programming Language and Data structures ▪ Web GIS and open platforms for geoprocessing ▪ Overview of ML ▪ Spatial Sampling and Variogram Modeling
Elective-I <ul style="list-style-type: none"> ▪ Agricultural & Soil Resource ▪ Management Forest Resource & ▪ Ecosystem Analysis Urban & Regional Studies ▪ Advances in Image Analysis & Geoinformatics
##Elective-II <ul style="list-style-type: none"> ▪ Satellite Hydrology & Water Resource ▪ Management Geological Remote Sensing ▪ Marine and Atmospheric Remote Sensing ▪ Natural Hazards and Disaster Risk Management
Study Tour
Field Visits
Semester End Examination
Semester-II Module-3
Pilot Project Study & Seminar Presentation



CSSTEAP participants passing out function

#Elective-I

Agricultural & Soil Resource Management

- LULC & Crop Inventory : Optical and Microwave Remote Sensing
- Crop Condition Assessment, Crop Yield Modelling and Agriculture Informatics
- Soil Resource Mapping & Land Evaluation
- Land Degradation and Watershed Management
- Agromet Parameters Retrieval and Agricultural Water Management

Forest Resource & Ecosystem Analysis

- Forest mapping and monitoring
- Forest Inventory
- Forest informatics
- Forest ecosystem analysis
- Climate change and impact assessment

Urban & Regional Studies

- Basic Concepts and Mapping Principles
- Urban Area Analysis and Modeling
- Urban Resources and Hazards Studies
- Urban Micro-Climate, Environment & Advanced Techniques

Advances in Image Analysis & Geoinformatics

- Fuzzy Deep Learning and Object based Classification
- Polarimetric and Interferometric
- LiDAR & UAV Remote Sensing
- Geospatial Modeling
- Geospatial Big Data Analytics

Elective-II

Satellite Hydrology & Water Resource Management

- Monitoring and Quantification of Hydrological Cycle Using Remote Sensing
- Watershed Characterization, Watershed Hydrology and Hydrological Analysis
- Hydrological Modeling
- Assessment and Monitoring of Hydrological Disasters (Flood & Drought)
- Irrigation Infrastructure & Water Management and Groundwater Targeting & Modeling

Geological Remote Sensing

- Remote Sensing for Earth & Planetary Science
- Data Processing and Analysis for Geosciences
- Application of Remote Sensing in Mineral and Hydrocarbon Exploration
- Remote Sensing applications in Applied and Tectonic Geomorphology
- Application of Remote Sensing and GIS in Engineering Geology and Ground water

Marine and Atmospheric Remote Sensing

- Coastal Landforms, Bathymetry and Hazards
- Satellite Oceanography
- Atmospheric Physics & Dynamics
- Retrieval of Atmospheric Parameters
- Mesoscale Meteorology and Tropical Dynamics

Natural hazards and Disaster Risk Management

- Concepts and overview of Disaster Management
- Geological Hazards
- Hydrological Hazards
- Environmental and Meteorological Hazards
- Coastal and Extreme weather events Hazards



CSSTEAP participants attending Conference

- ◆ Literature survey
- ◆ RS data products Identification and acquisition
- ◆ Ground data collection and field verification
- ◆ Analysis and results
- ◆ Documentation and generation of report
- ◆ Project seminar

PHASE II: ONE YEAR PROJECT

Eligible participants after completing Phase-I of the course, will have to carry out an approved project in his/her home country for a period of one year. This is to be formulated jointly by the scholar and his/her advisor at the Centre during Module 3 of Phase I in an area relevant to the interest of the sponsoring institution/country. The sponsoring institution/country is obliged to guarantee on the return the scholar would remain in a suitable position with commensurate and progressive remuneration and other entitlements for a minimum period of 3 years and will be provided all facilities to carry out the work. This course programme will be considered complete on acceptance/approval of the submitted project report.

ABOUT THE CITY

Dehradun city, often called as Doon Valley, is at the base of chain of one of tallest mountains in the world in Western Himalayas in northern India. It is one of the educational hubs in India. Weather is moderate during March to May. The hill station Mussoorie, the Queen of hills, is 30 km from here and experiences snowfall during winter. Fairly heavy monsoon rains (average annual rainfall 2000 mm) prevail during June to September. Winter is severe during the months of December to February (minimum temperature occasionally touches 1 to 2 degree Celsius).

The valley has good greenery and is surrounded by dense tropical to temperate forests and pastures and provides pristine environment for academic pursuits. IIRS Campus is about 6 km from Dehradun railway station and about 30 kms from Jolly Grant Airport Dehradun. The place is well connected by train from New Delhi, Kolkata (Calcutta), Mumbai (Bombay), Lucknow and by road from New Delhi. By air it is well connected with Delhi. Haridwar and Rishikesh, the two famous pilgrim centers are about 60 and 40 km, respectively from city. The Western Himalayas are well known for wonderful landscape, mountaineering, tracking, trails and river rafting.

Several important national organizations/institutions are located here. Some of important ones are: Indian Council of Forestry Research and Education, Indira Gandhi National Forest Academy, Forest Survey of India, Wildlife Institute of India, Survey of India, Oil and Natural Gas Corporation Limited, Central Soil and Water Conservation Research and Training Institute, Botanical Survey of India, Zoological Survey of India, etc. There are a large number of tourist places in and around the city.

ALUMNI MEET

Alumni meets are organized to develop a network and to establish meaningful linkages between CSSTEAP, faculty and its past students. These are aimed to provide common platform to interact and apprise about the latest development in the space technology and its applications. Such meets were held in Nepal, Bangladesh, Sri Lanka, Bhutan, Myanmar and Philippines in the past. The center proposes to hold 2-3 such meetings in coming years in different countries with local support.



Clock tower landmark of Dehradun city.

How to apply online for the course

Instructions to the Applicants for filling online application form:

- The Website is best viewed in Firefox ver.70.x, Chrome ver.84.x, and Edge latest version.
- Please register with valid e-mail, after successful registration e-mail will be triggered at given e-mail address to activate the account.
- To activate your registration login with credentials with the activation link that sent on your already registered e-mail.

Note: In case the e-mail is not delivered on inbox, please check the spam folder.

- Before submitting the online application form, the applicants are requested to go through the course brochure carefully (eligibility and documents required etc.)
- Submit online application form well in advance along-with legible and scanned copies of all required documents. If the documents are in a language other than English, then translation certificate should be uploaded.
- The documents should be uploaded in valid scanned .pdf format (with file size limit between 25KB to 500KB).
- Recent scanned copies of passport-size photograph and Signature should be uploaded in jpeg, .jpg or .png format (with file size limit between 10KB to 100KB).
- The applicants are advised to fill in all their particulars carefully in the online application form.

Important Note: Applicant is required to upload sponsoring/nominating agency certificate with official seal, and or forwarded by the Governing Board Member (GB) of CSSTEAP (please refer to the list at www.cssteapun.org if any GB Member of your country is in the list). Indian applicants need not to send through GB member.

- Applicants are advised to retain the printout of the finally submitted online application form.
- **Please be noted that the online application form is not editable after final submission.**
- In case of any difficulties while submitting online application form please e-mail at websupport@iirs.gov.in
- The last date of submitting online application form is March 31, 2024 @ 05:00 PM IST.
- Please read the instructions and Step by Step guideline available in the portal before filling the form.

CSSTEAP



CSSTEAP participants visit to Vikram Sarabhai Space Exhibition Center, Ahmedabad



CSSTEAP participants visit to Mahatma Gandhi Ashram at Sabarmati, Ahmedabad, Gujrat



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