EXPECTED BENEFITS AFTER THE COURSE

After attending this course the participants are expected to gain theoretical and practical knowledge on the advances of remote sensing and GIS for various applications on Forestry and ecology. The participants should be able to use this knowledge in their country for their different applications in natural resource management and ecological studies based on latest technology and trends. Participants are encouraged to bring their own field data for analysis and learning.

TRAINING COURSE FEE AND ACCOMMODATION

A course fee of `15,000(equivalent to US$ 300) is charged which includes course materials and field trips. Accommodation for the participants will be arranged in hostel at IIRS, Dehradun. During the stay at Dehardun `50/day will be charged towards room rent of the participants. The cost consumables such as cooking gas need to be borne by the occupants themselves. If needed the participants can also join mess for food which being operated by the students.

FELLOWSHIPS TO PARTICIPANTS

The candidates are required to send their personal details/bio-data to the Course Director, IIRS, Dehradun on the prescribed Application Form, appended to this "Announcement Brochure" (or download from website (www.cssteap.org). Candidates are expected to make their own arrangements for all expenses. Preference will be given to the candidates who are financially supported by their organisations. A few fellowships covering to and fro international air travel, domestic air travel in India and living expenses (`16,000 per four weeks) in India are available from Government of India. However, preferences will be given to the fully self-sponsored candidates or sponsoring organisation candidates bearing international to and fro travel.

HEALTH AND 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/organisation 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. Please read the important instructions carefully, which are given at the end of the applications form.

APPLICATION PROCEDURE

Dully filled application form attached at the end of this document (can also be downloaded from www.cssteap.org) need to be sent on the contact details given below. The application form alongwith educational certificates needs to be forwarded through CSSTEAP Governing Board member in your country (please see details on the website) or through Indian Embassy/High Commission in your country or Your Embassy/ High Commission in India after nomination by your employer. For faster processing the advance copy can be sent to us directly either through by post or email.

About Host Institution Indian Institute of Remote Sensing

Indian Space Research organisation (ISRO) is a premier government organisation 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 an unit of 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, 4 months Certificate Courses, 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 10000 Scientists/Engineers from more than 90 countries. About 925 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, Government of India, other fellowship schemes, etc. For further details visit http://www.iirs.gov.in

IMPORTANT DATES

Last date of submission of application
March 10, 2016

Notification of admissions
By March 20, 2016

Contact details

Course Director, RS&GIS
Centre for Space Science & Technology Education in Asia and the Pacific
(Affiliated to the United Nations)
IIRS Campus, 4, Kalidas Road, Dehradun 248 001, India
Phone: +91 135 2524226/2524170, Fax: +91 135 2740785/2741987
Email: cssteap@iirs.gov.in Website: www.cssteap.org

Course Duration
May 23 - June 21, 2016

Short course on

Advances in Geospatial Tools in Forestry & Ecology Applications

Organised by

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

Conducted at

Indian Institute of Remote Sensing
Indian Space Research Organisation
Dept. of Space, Govt. of India
Dehradun - 248 001, U.K.

INTRODUCTION

The global climate change initiated at the beginning for the last century due to the rapid industrialization and the land use change has a profound impact on the different ecosystems on the earth. The loss of the forest cover as a result of deforestation and constant increase in the ecological foot print of the humanity is resulting in degradation of the ecological services which were provided by the earlier forested areas. This is resulting in unsustainable extraction of the ecosystem goods and services. Furthermore the impact of various anthropogenic and climate change induced disasters also play an important role in the health and stability of the ecosystems.

Biologically diverse ecosystems apart from providing the basic ecosystem services like climatic stabilization and carbon sinks is also a vital resource for technological development in agriculture, bioprospecting, pharmaceuticals and other technological innovations for societal benefits. The loss of biological diversity reduces the ecosystems ability to adapt to the change. The need of the hour is a systematic spatial and temporal monitoring of the natural resource and the intensity of the anthropogenic pressure on the resources.

The recent development in computer and related technologies opens up new vistas for natural resource management using earth observation and geo-information tools. Remote Sensing (RS) provides an important tool for extraction of information in near real-time and in spatial and temporal domains. Advances in RS and GIS include improvement in the spectral and spatial resolutions like Hyperspectral remote sensing, microwave remote sensing and LIDAR remote sensing and high resolution multispectral remote sensing for forestry and ecological applications. These advances have been useful in improving the accuracy of mapping, ecological characterization, management perspectives, REDD+, etc. Geoinformatics provides a framework for measurement, monitoring, modeling, planning, decision-making and management of our environment and natural resources. With introduction of GIS, the ecological modeling has reached a totally new dimension as the impact of anthropogenic pressure and climate change can be modeled in time and space. This training aims to familiarize the users/researchers/professionals/decision makers/academicians in the recent advances in the RS and GIS applications in forestry and ecology.

Shola vegetation with hilltop grasslands, Kudremukh, Karnataka

ABOUT CSSTEAP (AFFIL. TO UN) AND ITS ACTIVITIES

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 and is hosted by Indian Institute of Remote Sensing (IIRS) which is a unit of Indian Space Research organisation (ISRO), Government of India. For conducting its Remote Sensing & GIS programmes the Centre has arrangements with IIRS as a host institution. The Centre has also arrangements with Space Applications Centre (SAC) Ahmedabad, playing as host institution for programmes related to Satellite Communications, Satellite Meteorology and Global Climate, Global Navigation Satellite Systems and Physical Research Laboratory (PRL) Ahmedabad for Space and Atmospheric Sciences.

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 information and application programmes. The Centre also fosters continuing education to its alumni. About 1524 professionals from 35 countries within and outside the Asia-Pacific region have graduated so far from the Centre (http://www.cssteap.org).

ACADEMIC ACTIVITIES

The Centre organize post Graduate course of 9-months at host institutions of Indian Space Research organisation (ISRO) in the areas of Remote Sensing and Geographic Information System at IIRS, Dehradun; Satellite Communication, Satellite Meteorology and Global Climate, and Global Navigation Satellite Systems at Space Applications Centre Ahmedabad and Space and Atmospheric Sciences at Physical Research Laboratory, Ahmedabad. The successful participants also get an opportunity to take up master's programme (Master of Technology degree from Andhra University, Visakhapatnam).

The Centre also organizes short courses and on demand special courses for United Nations Agencies like UNSPIDER, UNESCAP, UNDP etc.

Rauwolfia serpentina Benth., threatened medicinal plant

OBJECTIVES

The overall objective of this training course is to update and generate awareness among users/researchers/Professionals/decision makers/academicians on the Advances in Remote Sensing and GIS Application in Forestry and Ecology. The participants will be familiarized with use of various kinds of remote sensing data and geoinformation science starting from assessment of the forest resources, ecological studies, quantification of biomass and carbon, ecological damage and risk assessment, and geospatial modeling and also modern trends of research on climate change, invasive species mapping and modeling, use of Terrestrial Laser Scanner, Hemiview, etc.

ELIGIBILITY

Master's degree in science or Bachelor's degree in engineering or equivalent qualification relevant in the field of study with atleast 5 years of experience in teaching/research or professional experience in the field of Remote sensing technology, life sciences, environmental sciences, Botany, Zoology, wildlife, forestry or ecology (for candidate 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.

TRAINING COURSE DURATION AND LOCATION

The training course is being organized by Centre for Space Science and Technology Education in Asia and Pacific (CSSTEAP) and will be conducted by the faculty of Indian Institute of remote Sensing, ISRO Dehradun, India from May 23 - June 21, 2016.

LANGUAGE

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 kindly ensure this.

COURSE STRUCTURE

The course is modular in structure and provides a balanced treatment of theory, application and practical experience as follows:

Module 1 (1st& 2ndweek): Introduction to fundamentals and basic of remote sensing and Geographic Information System, optical, hyperspectral, thermal, microwave and LIDAR remote sensors and their applications in Forestry and Ecology. Forest type and forest density mapping, ecosystem structure and functioning, biodiversity assessment for conservation prioritization, ecological disasters, land use and land cover changes, wildlife habitat suitability.

Module 2. (3rd week) Applications of remote sensing for biomass and Carbon assessment, Application of remote sensing data to study plant biophysical and biochemical properties, Forest fire detection and risk assessment, Assessment of ecosystem goods and services, species distribution modeling, modeling distribution of invasive species, Ecological network and corridor connectivity, Impact of climate change on species and habitats, application Terrestrial Laser Scanner, Vegetation-Soil-Fluxes, etc.

Module 3 (4thweek): Pilot project on one of the applications of RS and GIS as mentioned above in groups or individually.

COURSE IMPLEMENTATION/ORGANISATION

The course curriculum will be implemented through a mixture of theory lectures and practical exercises, by using state of the art hardware, software and instrumentation facilities. This course will be conducted by the faculty mainly from Forestry Ecology Department with support from Photogrammetry and Remote Sensing and Geoinformation Department at Indian Institute of Remote Sensing, Dehradun, India. The core faculty consists of experienced scientists/engineers working at various centers of Indian Space Research organisation/Department of Space, Govt. of India. Each participant will be provided a PC loaded with image processing and GIS software to have hands on experience.