



**DIVISION OF AGRICULTURAL PHYSICS
INDIAN AGRICULTURAL RESEARCH INSTITUTE
NEW DELHI - 110 012 (INDIA)**



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Sub: Announcement of Eighteenth IIRS Outreach Programme on "**Basics of Remote Sensing, GIS & GNSS**", schedule to be conducted during August 22 – November 18, 2016.

Dear Sir/Madam,

I am happy to announce that EDUSAT based eighteenth IIRS Outreach Programme on "**Basics of Remote Sensing, GIS & GNSS**", schedule to be conducted during August 22 – November 18, 2016 in this Division. The training will be offered by Indian Institute of Remote Sensing (IIRS), ISRO, Department of Space, Dehradun which will be received by our end through internet by utilizing A-VIEW software facility available with us. The training will be conducted during 4.00-5.30 pm on the scheduled dates only. The course is open to UG & PG students/researchers/scientific & technical staff and interested individuals. The successfully completed participants will be awarded with certificate from IIRS, ISRO. I would request you to send the nominations of scientists, MSc and Ph.D. students from your Division for the participation in this programme. The nomination of the candidates may be sent to **Dr. Nilimesh Mridha, Course Co-ordinator**, Division of Agricultural Physics, IARI, New Delhi – 110 012 (Email: nilimesh.mridha@gmail.com) latest by 16th August, 2016 and all the nominated participants are requested to register through **online mode only** and print out of filled up application forwarded by the Head of the Division should be submitted to the Course coordinator within the time period. There is no course fee. Interested participants may register online through IIRS website: <http://iirs.gov.in/Edusat-News/>.

All the nominated participants are requested to report at 4.00 pm, August 22, 2016 in the C. Dakshinamurthy Seminar Hall of the Division of Agricultural Physics. The details of the program and class schedule are enclosed here with.

Thanking You.

Yours sincerely,


25-7-16

(Prameela Krishnan)

HEAD

Division of Agricultural Physics
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New Delhi-110012

IIRS Outreach Programme

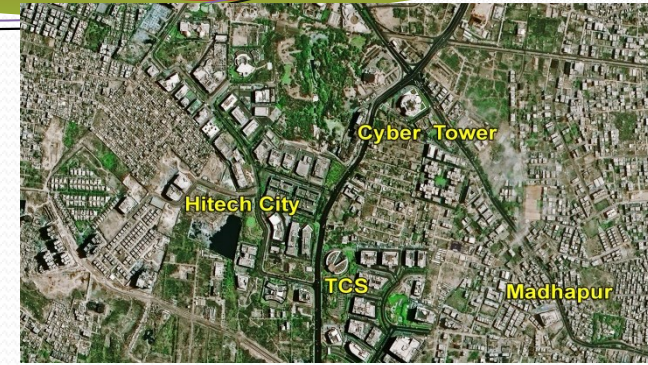
The IIRS Outreach Programme, which started in 2007 with 12 universities/institutions, has now grown substantially. Currently, 410 universities/institutions spread across India covering 29 States and 2 union territories are networked with IIRS. The beneficiaries of the programme include:

- Central/State/Private Universities & Academic Institutions
- Central & State Government Organisations/Departments
- Research Institutes
- Geospatial Industries
- NGOs

About IIRS

Indian Institute of Remote Sensing (IIRS) under Indian Space Research Organisation (ISRO), Department of Space, Govt. of India is a premier Training and Educational Institute set up for developing trained professionals in the field of Remote Sensing, Geoinformatics and GPS Technology for Natural Resources, Environmental and Disaster Management. Formerly known as Indian Photo-interpretation Institute (IPI), founded in 1966, the Institute boasts to be the first of its kind in entire South-East Asia. While nurturing its primary endeavour to build capacity among the user community by training mid-career professionals, the Institute has enhanced its capability and evolved many training & education programmes that are tuned to meet the requirements of various target groups, ranging from fresh graduates to policy makers including academia.

18th IIRS Outreach Programme



**Basics of Remote Sensing,
Geographical Information System &
Global Navigation Satellite System**

August 22 – November 22, 2016

Sponsored by

National Natural Resources Management System
(NNRMS)



Organised by

Indian Institute of Remote Sensing
Indian Space Research Organisation
Department of Space, Govt. of India
Dehradun

www.iirs.gov.in

IIRS outreach program is popular across India. So far, 17 programmes have been conducted benefiting 30,000 participants.

IIRS also conducts e-learning Programme (<http://elearning.iirs.gov.in>) on Remote Sensing and Geoinformation Science.

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Feedback Mechanism

IIRS has conducted seven workshops in 2007, 2009, 2010, 2013, 2014, 2015 and 2016 to take feedback from participating institutions to improve the quality of future courses.



Participants of seventh Outreach feedback session during IIRS User Interaction Meet (IUIIM)-2016

Awards

Received National Awards for excellence in training for IIRS Outreach Programme and e-learning Programme during 1st National Symposium on Excellence in Training conducted on April 11-12, 2015 in New Delhi, by Department of Personnel & Training (DoPT), Govt. of India, in collaboration with United Nations Development Programme (UNDP).



About the Course

The use of Remote Sensing, Geographical Information System, Global Navigation Satellite System and associated geospatial technologies is increasing rapidly, creating an urgent demand for trained manpower. IIRS utilizes the Ku-Band facility of INSAT-4CR, an ISRO Satellite and Internet, for conducting Distance Learning Programme to primarily complement the educational programmes of the Indian Universities. The target group includes students at undergraduate/postgraduate level and faculty/researchers at different universities/institutions. Under its Outreach Programme, IIRS has established its own Teaching end studio and uplinking facility in the campus under national beam coverage of ISRO satellites, connecting numerous classroom end users. Internet bandwidth is also used as an alternative option. IIRS has successfully conducted 17 such courses so far with participation of over 30,000 students from 410 institutions. This programme can be received live using A-VIEW e-learning tool developed by Amrita University in internet environment with login permission. Course participation has increased with the option of A-VIEW software as it has also enabled participation of many who do not have the SIT facility.

Curriculum

The course is divided into 4 modules:

- Remote Sensing and Digital Image Analysis
- Global Navigation Satellite System
- Geographical Information System
- RS and GIS Applications

The topics include;

- Basic Principles of Remote Sensing, Earth Observation Sensors and Platforms, Spectral Signature of different land cover features, Image interpretation
- Thermal & Microwave Remote Sensing
- Digital Image Processing: Basic Concepts of Rectification and Registration, Enhancement, Classification and accuracy assessment techniques

- Introduction to GPS and GNSS, receivers, processing methods, errors and accuracy
- GIS, data bases, topology, spatial analysis and open source software's.
- RS & GIS Applications: Agriculture and Soil, Forestry and Ecology, Geoscience and Geohazards, Marine and Atmospheric Sciences, Urban and Regional Studies and Water Resources

Course study materials like lecture pdf, lecture video, lecture notes, open source software, practical data & handouts of practical lecture etc. will be made available through IIRS ftp site and lecture videos are uploaded in YouTube Channel (<http://www.youtube.com/user/edusat2004>)

Target Participants

- Student of undergraduate course/ Postgraduate course (any year).
- Technical/ Scientific Staff of Central/ State Government Ministries/ Departments
- Faculty / researchers at university / institutions are also eligible to participate in this course.

Applications of participants have to be duly sponsored by their university/institution/College/Ministry/Departments and forwarded through coordinators from respective centres. Institutions on high speed National Knowledge Network (NKN) can also participate using A-VIEW software.

Course Registration

Online registration is open through URL: <http://iirs.gov.in/Edusat-News/>, the online registration is mandatory. No hard copy application will be accepted. There is no course fee.

Award of Certificate

Based on 70% attendance and must secure minimum 40% marks in all qualifying online examinations.

Sponsors & Technical Support

The programme is sponsored by National Natural Resources Management System – Standing Committee on Training and Education (SC-T), Indian Space Research Organisation, Department of Space, Government of India and is conducted with due technical help from Satellite Communications & Navigation Programme (SCNP), ISRO; Development and Educational Communication Unit (DECU), ISRO and A-VIEW, Amrita University, National Mission on Education through Information and Communication Technology

Programme Receptions

NKN/ NMEICT Institutions/ other Institutions / Universities may participate in IIRS Outreach Programme by using any one of the following setups:

Option-I: A-VIEW Internet based streaming

Hardware Requirements :

- High end Computer/Laptop (Windows OS)
- Good quality web camera
- Headphone with Microphone
- Speakers
- Large Display Screen (Projector or TV)

Software and Internet Requirements

- Desktop based- A-VIEW software (free to download from www.aview.in or IIRS ftp link: <ftp://ftp.iirs.gov.in>)
- Web based- <https://live.aview.in>
- National Knowledge Network or any other high speed internet facility (Preferably without firewall, bandwidth (2 mbps minimum))
- Network requirements Port 80 and RTMP (port 1935) protocol should be unblocked from users' computer

Option-II: (Web Browser Based)

- URL- <http://live.iirs.gov.in> (required Flash player and JRE at user end)
- User registration and activation through email
- Participate through live two way web casting.

Note University/Institute/College have to bear total expenses for establishment of classroom facility



Eighteenth IIRS Outreach Programme
on
Basics of “Remote Sensing, Geographical Information System and Global
Navigation Satellite System”

August 22 – November 18, 2016

Tentative Schedule

Module	Name of the Module	Duration	
		From	To
1	Remote Sensing and Digital Image Analysis	22-08-2016	14-09-2016
2	Global Navigation Satellite System	15-09-2016	26-09-2016
3	Geographical Information System	27-09-2016	30-10-2016
4	RS & GIS Applications	31-10-2016	18-11-2016

Technical Support from

A-VIEW, Amrita University, Coimbatore

Under the aegis of

National Natural Resources Management System (NNRMS)

July, 2016

Module 1: Remote Sensing & Digital Image Analysis				
Module Coordinator: Ms. Minakshi Kumar				
Date	Day	Time	Topic	Speaker
22 Aug 16	Monday	1600-1730 hrs	Course Inauguration and Introductory Lecture	Dr. A. Senthil Kumar
23 Aug 16	Tuesday	1600-1730 hrs	Basic Principles of Remote Sensing	Ms. Manu Mehta
24 Aug 16	Wednesday	1600-1730 hrs	Earth Observation Sensors and Platforms	Mr. Vinay Kumar
25 Aug 16	Thursday		Janmashtami	
26 Aug 16	Friday	1600-1730 hrs	Spectral Signatures of Different Land cover Features and Visual Image interpretation	Dr. Hina Pande
27 Aug 16			Saturday	
28 Aug 16			Sunday	
29 Aug 16	Monday	1600-1730 hrs	Microwave Remote Sensing	Mr. Shashi Kumar
30 Aug 16	Tuesday	Offline (Morning Session)	RS and Image Interpretation Practical	By University Coordinator
		1600-1730 hrs	Thermal Remote Sensing	Dr. Yogesh Kant
31 Aug 16	Wednesday		BREAK	
01 Sep 16	Thursday	1600-1730 hrs	Digital Image Processing: Basic Concepts Rectification and Registration	Mrs. Minakshi Kumar
02 Sep 16	Friday	1600-1730 hrs	Image Enhancement techniques	Dr. Poonam S. Tiwari
03 Sep 16			Saturday	
04 Sep 16			Sunday	
05 Sep 16	Monday		GANESH CHATURTHI	
06 Sep 16	Tuesday		BREAK	
07 Sep 16	Wednesday	1600-1730 hrs	Image Classification Techniques and Accuracy Assessment	Dr. Poonam S. Tiwari
08 Sep 16	Thursday	1600-1730 hrs	Demonstration: Image Processing	Mrs. Minakshi Kumar
09 Sep 16	Friday	Offline - as per computer lab availability Morning Session	Image Processing Hands-on and Practical Assignment	By University Coordinator
		1600-1730 hrs	Hyperspectral Remote Sensing	Mrs. Shefali Agarwal
10 Sep 16			Saturday	
11 Sep 16			Sunday	
12 Sep 16	Monday		ID-UL-JUHA(BAKRID)	
13 Sep 16	Tuesday	Offline - as per computer lab availability	Practical Assignment submission by Participants to respective coordinators and evaluation to be done by respective coordinators	
14 Sep 16	Wednesday		ONAM/BREAK	
Module-2 Global Navigation Satellite System				
Module Coordinator: Shri Ashutosh Bhardwaj				
15 Sep 16	Thursday	1600-1730 hrs	Introduction to GPS and GNSS	Er. Ashutosh Bhardwaj
16 Sep 16	Friday	1600-1730 hrs	GPS receivers, processing methods, errors and accuracy	Er. Ashutosh Bhardwaj
17 Sep 16			Saturday	
18 Sep 16			Sunday	
19 Sep 16	Monday	1600-1730 hrs	Satellites based Augmentation systems	Er. Ashutosh Bhardwaj
20 Sep 16	Tuesday	1600-1730 hrs	GPS signal characteristics, Data formats (broadcast, precise ephemeris)	Er. Ashutosh Bhardwaj
21 Sep 16	Wednesday		BREAK	
22 Sep 16	Thursday	1600-1730 hrs	Indian Regional Navigation Satellite System (IRNSS) & GPS Aided and GEO Augmented Navigation (GAGAN)	
23 Sep 16	Friday	1600-1730 hrs	Demonstration on Data collection using Geodetic receivers)	Er. Ashutosh Bhardwaj
24 Sep 16			Saturday	
25 Sep 16			Sunday	
26 Sep 16	Monday	1600-1730 hrs	GPS/GNSS Radio Occultation	Guest Faculty SAC
Module-3- Geographical Information System				
Module Coordinator: Shri Prasun Kumar Gupta				
Date	Day	Time	Topic	Speaker
27 Sep 16	Tuesday	1600-1730 hrs	Introduction to GIS	Dr. Sameer Saran
28 Sep 16	Wednesday	1600-1730 hrs	Geographic Phenomena, Concepts and examples	Dr. Sameer Saran
29 Sep 16	Thursday		BREAK	
30 Sep 16	Friday		Exam Module-1 & 2	
01 Oct 16			Saturday	

02 Oct 16	Sunday	Mahatma Gandhi Jayant		
03 Oct 16	Monday	1600-1730 hrs	Data Inputting and Editing in GIS	Shri Shiva Reddy
04 Oct 16	Tuesday	1600-1730 hrs	GIS Data Models (Spatial and Non spatial)	Shri Ashutosh Kumar Jha
05 Oct 16	Wednesday	Break		
06 Oct 16	Thursday	1600-1730 hrs	Map Projection Concepts & Use in RS & GIS	Shri Ashutosh Srivastav
07 Oct 16	Friday	1600-1730 hrs	Spatial Analysis- Introductory Concepts and Overview	Shri Kapil Oberai
08 Oct 16	Saturday			
09 Oct 16	Sunday			
10 Oct 16	Monday	1600-1730 hrs	Spatial Analysis- Functionality and Tools	Shri Kapil Oberai
11 Oct 16	Tuesday	DUSSHERA		
12 Oct 16	Wednesday	MUHARRAM		
13 Oct 16	Thursday	1600-1730 hrs	Spatial Data Management using RDBMS-Demo on PostGRE SQL+ Post GIS	Shri Kapil Oberai
14 Oct 16	Friday	1600-1730 hrs	3D GIS and Applications including Trivim	Shri Shiva Reddy
15 Oct 16	Saturday			
16 Oct 16	Sunday			
17 Oct 16	Monday	1600-1730 hrs	Open Source S/w Technology & Tools	Shri P K Gupta
18 Oct 16	Tuesday	1600-1730 hrs	Data Quality & Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources	Dr. Harish Karnatak
19 Oct 16	Wednesday	1600-1730 hrs	Demo of QGIS Software – Session 01: • Adding GIS Data ,Attribute table & identity tool • Change symbology, Create map composers • Manage plugins, CRS & EPSG • Geo-referencing & Tie-points , RMSE & Rectification	Shri P K Gupta
20 Oct 16	Thursday	1600-1730 hrs	Demo of QGIS Software – Session 02: (Data Creation/Vector Generation) • Digitization ,Setting digitizing environment • Adding attributes to layer, Editing digitized layer • Attribute Queries, Spatial Queries Linking spatial & non-spatial data	Shri P K Gupta
21 Oct 16	Friday	1600-1730 hrs	Geo-Web Services and Mobile Mapping: Technical Concepts	Dr. Harish Karnatak
22 Oct 16	Saturday			
23 Oct 16	Sunday			
24 Oct 16	Monday	1600-1730 hrs	Geoweb Services and Geo Portal Applications	Dr. Harish Karnatak
25 Oct 16	Tuesday	1600-1730 hrs	Uncertainty in GIS and Error Propagation	Shri Hari Shankar
26 Oct 16	Wednesday	BREAK		
27 Oct 16	Thursday	1600-1730 hrs	Customization in GIS	Shri Kamal Pandey
28 Oct 16	Friday	1600-1730 hrs		
29 Oct 16	Saturday			
30 Oct 16	Sunday			
Module-4 RS & GIS Applications				
Module Coordinator: Dr. Arijit Roy				
Date	Day	Time	Topic	Speaker
31 Oct 16	Monday	1600-1730 hrs	EO Applications for Natural Resources and Disaster Management	Dr. S. K Srivastav
01 Nov 16	Tuesday	1600-1730 hrs	Remote Sensing and GIS Applications in Soil Resource Assessment	Dr.Suresh Kumar
02 Nov 16	Wednesday	BREAK		
03 Nov 16	Thursday	1600-1730 hrs	Remote Sensing Applications in Agriculture- Crop Inventory & Yield Forecasting	Dr. N.R. Patel
04 Nov 16	Friday	1600-1730 hrs	RS & GIS Applications in Forestry and Ecology	Dr.Sarnam Singh
05 Nov 16	Saturday			
06 Nov 16	Sunday			
07 Nov 16	Monday	1600-1730 hrs	Engineering Geology with emphasis on landslide studies	Dr. P.K.C.Ray
08 Nov 16	Tuesday	1600-1730 hrs	Geology and Geomorphology	
09 Nov 16	Wednesday	1600-1730 hrs	Space-enabled Products & Services for Disaster Management :Indian Initiatives	Dr. S. K Srivastav
10 Nov 16	Thursday	1600-1730 hrs	RS & GIS Applications to Water Resources Management	Dr. S.P Aggarwal
11 Nov 16	Friday	1600-1730 hrs	RS & GIS for Coastal Zone Management	Dr. D. Mitra
12 Nov 16	Saturday			
13 Nov 16	Sunday			
14 Nov 16	Monday	Guru Nanak's Birthday		
15 Nov 16	Tuesday	1600-1730 hrs	Remote Sensing Application to Atmospheric & Marine Environment	Dr. A.K Mishra
16 Nov 16	Wednesday	1600-1730 hrs	RS & GIS Application in Urban & Regional Planning	Dr. Pramod Kumar
17 Nov 16	Thursday	1600-1730 hrs	Examination Module-3 & 4	
18 Nov 16	Friday	1600-1730 hrs	Panel discussion Feedback	