



# कृषि भौतिकी संभाग

भा.कृ.अनु.प.-भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली-110012

DIVISION OF AGRICULTURAL PHYSICS

ICAR-Indian Agricultural Research Institute, New Delhi - 110 012



डा० प्र. कृष्णन

अध्यक्ष

Dr. P. Krishnan

Head

Ref. No. AP / .....

Dated 08-08-17.

Sub: Announcement of 23<sup>rd</sup> to 27<sup>th</sup> IIRS Outreach Program on "Basics of Remote Sensing, GIS & GNSS", schedule to be conducted during August 21 to December 01, 2017.

Dear Sir/Madam,

I am happy to announce that EDUSAT based 23<sup>rd</sup> to 27<sup>th</sup> IIRS Outreach Programme on "Basics of Remote Sensing, GIS & GNSS", schedule to be conducted during August 21 to December 01, 2017 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/working professionals 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 program. 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 16<sup>th</sup> August, 2017 and all the nominated participants are requested to register through **online mode only**. There is no course fee. Interested participants may register online through IIRS website:

Link for participant's registration: [http://elearning.iirs.gov.in/edusat\\_lms/student\\_registration.php](http://elearning.iirs.gov.in/edusat_lms/student_registration.php)  
Updates on this program will be available at: <http://dlp.iirs.gov.in>

All the nominated participants are requested to report at 4.00 pm, August 21, 2017 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,

(P Krishnan)

डा. प्र. कृष्णन  
Dr. P. KRISHNAN  
अध्यक्ष / HEAD

कृषि भौतिकी संभाग/Divn. of Agricultural Physics  
भा.कृ.अनु.प.- भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली-12  
ICAR-Indian Agricultural Research Institute, New Delhi-12

Tel. : +91 (11) 2584 1178  
+91 (11) 2584 2321

Fax : +91(11) 2584 3014  
Mobile : 09873532369

E-mail : pkrishnan@iari.res.in  
prameelakrishnan@yahoo.com



Announcement Brochure

# IIRS Outreach Programme

Basics of Remote Sensing, Geographical Information System and Global Navigation Satellite System

**August 21 – December 01, 2017**

*Organised by*

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

<http://www.dlp.iirs.gov.in>



**iirs**

## About IIRS

Indian Institute of Remote Sensing (IIRS), a unit under Indian Space Research Organization (ISRO), Department of Space, Government of India is a premier Training and Educational Institute set-up for developing trained professionals in the field of Remote Sensing, Geoinformatics and GNSS 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 endeavor to build capacity among the user community by training mid-career professionals, the Institute has enhanced its capability and evolved many training and education programmes that are tuned to meet the requirements of various target user groups in the society, ranging from fresh graduates to policy makers including academia.

The training and education programmes at IIRS includes the short duration customized courses, PG Diploma, Master's Degree (M.Tech and M.Sc.) in various disciplines. IIRS also conducts distance learning programmes under IIRS Outreach Activity.

## IIRS Outreach Programme

IIRS Outreach Programme focusses on strengthening the Academia and User Segments in Space Technology & Its Applications using Online Learning Platforms. IIRS distance learning program was initiated in 2007 with the participation of twelve universities in India. Till date, IIRS has successfully conducted 22 programs through live and interactive classrooms (also known as EDUSAT programme) and also launched five online courses under e-learning programme. Currently IIRS distance learning programme is being conducted through following modes:

1. Live and Interactive classroom sessions (<http://dlp.iirs.gov.in>)
2. E-learning based online courses (<http://elearning.iirs.gov.in>)

## Live and Interactive classroom

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. The live and interactive mode of distance learning is enabled through Internet and A-view software platform developed by Amrita e-learning Lab in collaboration with Ministry of Human Resource Development (MHRD) Government of India. **The programs are available through Internet without any cost to the user.** The live and interactive sessions will be conducted by experts from IIRS-ISRO and other knowledge Institutions. IIRS has successfully conducted 22 such courses so far with participation of over **46590+ participants from 626+ academic institutions, government departments and industry.** The beneficiaries of the programme may include:

- ❖ Central/State/Private Universities & Academic Institutions;
- ❖ Central & State Government Organizations/Departments;
- ❖ Research Institutes;
- ❖ Geospatial Industry;
- ❖ NGOs.

IIRS also conducts various theme oriented online courses and monthly webinars on recent topics on geospatial technologies and its applications. Users are encouraged to actively participate on these programs. For more detail please visit IIRS official website- [www.iirs.gov.in](http://www.iirs.gov.in)

# Course Announcement

IIRS announces four courses commencing from **August 21st, 2017**

- ❖ **Remote Sensing and Digital Image Analysis** (21/08/2017 to 15/9/2017): 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.
- ❖ **Global Navigation Satellite System and Geographical Information System** (25/09/2017 to 10/11/2017): Introduction to GPS and GNSS, receivers, processing methods, errors and accuracy, GIS, databases, topology, spatial analysis and open source software.
- ❖ **RS and GIS Applications** (13/11/2017 to 01/12/2017): Agriculture and Soil, Forestry and Ecology, Geoscience and Geo-hazards, Marine and Atmospheric Sciences, Urban and Regional Studies and Water Resources.
- ❖ **Basics of Remote Sensing, GIS and GNSS** (21/08/2017 to 01/12/2017): Comprehensive course consisting of above three courses.

The participants can register for **individual course** of their choice or the **entire Programme**.

## Target Participants

- ❖ Student of Undergraduate and Postgraduate courses (any year);
- ❖ Technical/ Scientific Staff of Central/ State Government Ministries/ Departments;
- ❖ Faculty / Researchers at university / Institutions.

## Course Study Material

Course study materials such as lecture slides, video recorded lectures, open source software, data & handouts of demonstrations, etc., will be made available through IIRS **ftp** link (<ftp://ftp.iirs.gov.in>) Video lectures will also be uploaded on YouTube Channel (<http://www.youtube.com/user/edusat2004>).

## Course Fee

There is **no course fee**.

## Course Registration

Course updates and other details will be available on URL- <http://www.dlp.iirs.gov.in>

- ❖ To participate in the program, organizations/universities/departments/ Institutes have to identify a Coordinator at their end. The coordinator is required to register his/her Institute as nodal centre at: ([http://elearning.iirs.gov.in/edusat\\_lms/cordinator\\_registration.php](http://elearning.iirs.gov.in/edusat_lms/cordinator_registration.php)).
- ❖ All the participants have to register online through registration page ([http://elearning.iirs.gov.in/edusat\\_lms/student\\_registration.php](http://elearning.iirs.gov.in/edusat_lms/student_registration.php)) by selecting his/her organization as nodal centre.
- ❖ The Coordinator is required to approve the participants from his/her institute for each course.

## Course Funding & Technical Support

The programme is sponsored by Indian Space Research Organization, Department of Space, Government of India and is conducted with due technical support from Amrita Virtual & Interactive E-learning World (A-VIEW).

## Programme Reception

Programme can be received through Internet connectivity of 2Mbps or better. Following hardware and software set-up is required at user end:

**Hardware Requirements:**

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

**Software and Internet Requirements:**

- ❖ Desktop based: **A-VIEW software** (free to download from [www.aview.in](http://www.aview.in) or IIRS ftp link: <ftp://ftp.iirs.gov.in>)
- ❖ Online live access through <http://live.iirs.gov.in> with free registration.

**Connectivity & Other configurations:**

- ❖ NKN or any other high speed internet facility (preferably without firewall, with minimum of **2 Mbps bandwidth**)
- ❖ Network requirements: **Port 80 and RTMP (port 1935)** protocol should be unblocked from user's computer and Firewall.

**Note:** Participating Institutions have to bear total expenses for establishment of the classroom facility.

## Award of Certificate

**Working Professionals:** Based on 70% attendance and submission of assignments.

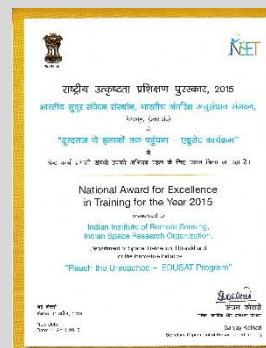
**Students:** Based on 70% attendance and online examination.

## Feedback Mechanism

The participants and participating organizations are invited to attend annual IIRS User Interactive Meet (IUIM) at IIRS Dehradun. The participants can submit their feedback online through IIRS e-learning portal. Feedbacks are critically analyzed and implemented in next courses.



Outreach Programme Feedback Session during IIRS User Interaction Meet (IUIM)-2017



IIRS received two national awards for excellence in training for outreach and e-learning programme by Department of Personnel & Training (DoPT), Govt. of India in collaboration with United Nations Development Programme (UNDP).

## Contact Details

IIRS Distance Learning Centre

Indian Institute of Remote Sensing, Indian Space Research Organization

Department of Space, Govt. of India, 4-Kalidas Road, Dehradun-248001

**Email:** [dlp@iirs.gov.in](mailto:dlp@iirs.gov.in); **Tel:** 0135-2524130/4354/4115; **Mobile:** 9410924417, 7895309151

Monday to Friday (9:30 AM to 05:00 PM)



---

**Twenty-third IIRS Outreach Programme  
On  
Basic of RS, GIS & GNSS**

**Tentative Schedule**

Sl No.	Module Name	From	To
1	Remote Sensing and Digital Image Analysis	22-08-2017	15-09-2017
2	Global Navigation Satellite System & Geographical Information System	25-09-2017	10-11-2017
3	RS & GIS Applications	13-11-2017	04-12-2017

Technical Support from

A-VIEW, Amrita University, Coimbatore

July, 2017

**Module 1: Remote Sensing & Digital Image Analysis**  
**Module/ Course Coordinator: Ms. Minakshi Kumar**

<b>Date</b>	<b>Day</b>	<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
21 Aug 17	Monday	1600-1730 hrs	Course Inauguration and Introductory Lecture	Dr. A. Senthil Kumar
22 Aug 17	Tuesday	1600-1730 hrs	Basic Principles of Remote Sensing	Mrs. Manu Mehta
23 Aug 17	Wednesday	1600-1730 hrs	Earth Observation Sensors and Platforms	Mr. Vinay Kumar
24 Aug 17	Thursday	1600-1730 hrs	Thermal Remote Sensing	Dr. Yogesh Kant
<b>25 Aug 17</b>	<b>Ganesh Chaturthi</b>			
<b>26 Aug 17</b>	<b>Saturday</b>			
<b>27 Aug 17</b>	<b>Sunday</b>			
28 Aug 17	Monday	1600-1730 hrs	Spectral Signatures of Different Land cover Features and Visual Image interpretation	Dr. Hina Pande
29 Aug 17	Tuesday	Offline (Morning Session)	RS and Image Interpretation Practical	By University Coordinator
<b>30 Aug 17</b>	<b>Wednesday</b>	<b>BREAK</b>		
31 Aug 17	Thursday	1600-1730 hrs	Digital Image Processing: Basic Concepts Rectification and Registration	Mrs. Minakshi Kumar
01 Sep 17	Friday	1600-1730 hrs	Image Enhancement techniques	Dr. Poonam S. Tiwari
<b>02 Sep 17</b>	<b>Saturday</b>			
<b>03 Sep 17</b>	<b>Sunday</b>			
<b>04 Sep 17</b>	<b>Monday</b>	<b>BREAK-ONAM</b>		
05 Sep 17	Tuesday	1600-1730 hrs	Image Classification Techniques and Accuracy Assessment	Dr. Poonam S. Tiwari
06 Sep 17	Wednesday	1600-1730 hrs	Microwave Remote Sensing	Mr. Shashi Kumar
07 Sep 17	Thursday	1600-1730 hrs	Hyperspectral Remote Sensing	Mrs. Shefali Agarwal
08 Sep 17	Friday	Offline - as per computer lab availability Morning Session	Image Processing Hands-on and Practical Assignment	By University Coordinator
09 Sep 17	<b>Saturday</b>			
10 Sep 17	<b>Sunday</b>			
11 Sep 17	Monday	1600-1730 hrs	Demonstration: Image Processing	Mrs. Minakshi Kumar
12 Sep 17	Tuesday	Offline - as per computer lab availability	Practical Assignment submission by Participants to respective coordinators and evaluation to be done by respective coordinators	
13 Sep 17	Wednesday	1600-1730 hrs	Panel Discussion Moule-1	Faculty of Module-1
14 Sep 17	<b>BREAK For Examination</b>			
15 Sep 17	Friday	9:30 Hrs to 17:00 Hrs	Online Examination of Module-1	Edusat Team

Module-2 Global Navigation Satellite System and Geographical Information System □ Module/ Course Coordinator: Shri Ashutosh Bhardwaj & Shri Prasun Kumar Gupta				
25 Sep 17	Monday	1600-1730 hrs	Introduction to GPS and GNSS	Er. Ashutosh Bhardwaj
26 Sep 17	Tuesday	1600-1730 hrs	GPS receivers, processing methods, errors and accuracy	Er. Ashutosh Bhardwaj
27 Sep 17	Wednesday	1600-1730 hrs	Satellites based Augmentation systems & GPS Aided and GEO Augmented Navigation (GAGAN)	Er. Ashutosh Bhardwaj
28 Sep 17	Thursday	1600-1730 hrs	GPS signal characteristics, Data formats (broadcast, precise ephemeris)	Shri S. Raghavendra
29 Sep 17			<b>BREAK</b>	
30 Sep 17	<b>Dussehra -Saturday</b>			
01 Oct 17	<b>Sunday</b>			
02 Oct 17	<b>Monday</b>		<b>Gandhi Jayanthi</b>	
Date	Day	Time	Topic	Speaker
03 Oct 17	Tuesday	1600-1730 hrs	Indian Regional Navigation Satellite System (IRNSS)	Er. Ashutosh Bhardwaj & Shri Kamal Pandey
04 Oct 17	Wednesday	1600-1730 hrs	DGPS demonstration (Pre-recorded followed by live query session)	Shri S. Raghavendra
05 Oct 17	Thursday	1600-1730 hrs	Mobile Mapping	Dr. Harish Chandra Karnatak
06 Oct 17	Friday		<b>BREAK</b>	
07 Oct 17	<b>Saturday</b>			
08 Oct 17	<b>Sunday</b>			
Geographical Information System Module/ Course Coordinator: Shri Prasun Kumar Gupta				
09 Oct 17	Monday	1600-1730 hrs	Introduction to GIS	Dr. Sameer Saran
10 Oct 17	Tuesday	1600-1730 hrs	Geographic Phenomena, Concepts and examples	Shri P K Gupta
11 Oct 16	Wednesday		Break	
12 Oct 17	Thursday	1600-1730 hrs	Data Inputting and Editing in GIS	Shri Shiva Reddy
13 Oct 17	Friday	1600-1730 hrs	GIS Data Models (Spatial and Non spatial)	Shri Ashutosh Kumar Jha
14 Oct 17	<b>Saturday</b>			
15 Oct 17	<b>Sunday</b>			
16 Oct 17	Monday	1600-1730 hrs	Map Projection Concepts & Use in RS & GIS	Dr. Ashutosh Srivastav
17 Oct 17	Tuesday	1600-1730 hrs	Spatial Analysis- Introductory Concepts and Overview	Shri Prabhhar Alok Verma
18 Oct 17	<b>BREAK</b>			
19 Oct 17	<b>Diwali</b>			
20 Oct 17	<b>BREAK</b>			
21 Oct 17	<b>Saturday</b>			
22 Oct 17	<b>Sunday</b>			
23 Oct 17	Monday	1600-1730 hrs	Spatial Analysis- Functionality and Tools	Shri Kapil Oberai
24 Oct 17	Tuesday	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
25 Oct 17	Wednesday	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
26 Oct 17	Thursday	1600-1730 hrs	Open Source S/w Technology & Tools	Shri P K Gupta
27 Oct 17	Friday	1600-1730 hrs	Data Quality & Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources	Dr. Harish Karnatak
28 Oct 17	<b>Saturday</b>			



<b>29 Oct 17</b>	<b>Sunday</b>			
30 Oct 17	Monday	1600-1730 hrs	Spatial Data Management using RDBMS-Demo on PostGRE SQL+ Post GIS	Shri Kapil Oberai
31 Oct 17	Tuesday	1600-1730 hrs	3D GIS and Application including Trivim	Shri Shiva Reddy
01 Nov 17	<b>Break</b>			
<b>02 Nov 17</b>	Thursday	1600-1730 hrs	Geo-Web Services: Technical Concepts and Applications	Dr. Harish Karnatak
03 Nov 17	Friday		Uncertainty in GIS and Error Propagation	Shri Hari Shankar
<b>04 Nov 17</b>	<b>Saturday – Guru Nanak Birthday</b>			
<b>05 Nov 17</b>	<b>Sunday</b>			
06 Nov 17	Monday	1600-1730 hrs	Customization in GIS	Shri Kamal Pandey
<b>07 Nov 17</b>	Tuesday	1600-1730 hrs	Recent Trends in Geoinformatics	Dr. Sameer Saran
<b>08 Nov 17</b>	Wednesday	1600-1730 hrs	Panel Discussion of Module 2	Faculty of Module-2
09 Nov 17	Thursday	<b>Break</b>		
10 Nov 17	Friday	9:30 Hrs to 17:00 Hrs	Online Exam - Global Navigation Satellite System and Geographical Information System	Edusat Team

<b>Module-3 RS &amp; GIS Applications</b>				
<b>Module/ Course Coordinator: Dr. Arijit Roy</b>				
<b>Date</b>	<b>Day</b>	<b>Time</b>	<b>Topic</b>	<b>Speaker</b>
13 Nov 17	Monday	1600-1730 hrs	Space Technology & its applications in governance	Dr. S. K Srivastav
14 Nov 17	Tuesday	1600-1730 hrs	Remote Sensing and GIS Applications in Soil Resource Assessment	Dr. Suresh Kumar
15 Nov 17	Wednesday	1600-1730 hrs	Remote Sensing Applications in Agriculture- Crop Inventory & Yield Forecasting	Dr. N.R. Patel
16 Nov 17	Thursday	1600-1730 hrs	RS & GIS Applications in Forestry and Ecology	Dr. Sarnam Singh
17 Nov 17	Friday	1600-1730 hrs	Engineering Geology with emphasis on landslide studies	Dr. Shovan Chatteraj
<b>18 Nov 17</b>	<b>Saturday</b>			
<b>19 Nov 17</b>	<b>Sunday</b>			
20 Nov 17	Monday	1600-1730 hrs	Geology and Geomorphology	Dr. R.S. Chatterjee
21 Nov 17	Tuesday	1600-1730 hrs	Space-enabled Products & Services for Disaster Management :Indian Initiatives	Dr. P.K.C.Ray
22 Nov 17	Wednesday	1600-1730 hrs	Geospatial Technology for climate change studies	Dr. Arijit Roy
23 Nov 17	Thursday	1600-1730 hrs	RS & GIS Applications to Water Resources Management	Dr. S.P Aggarwal
24 Nov 17	Friday	1600-1730 hrs	RS & GIS for Coastal Zone Management	Dr. D. Mitra
<b>25 Nov 17</b>	<b>Saturday</b>			
<b>26 Nov 17</b>	<b>Sunday</b>			
27 Nov 17	Monday	1600-1730 hrs	Remote Sensing Application to Atmospheric & Marine Environment	Dr. A.K Mishra
28 Nov 17	Tuesday	1600-1730 hrs	RS & GIS Application in Urban & Regional Planning	Dr. Pramod Kumar
29 Nov 17	Wednesday	1600-1730 hrs	Geo-web Services and mobile GIS in governance	Dr. Harish Karnatak
30 Nov 17	Thursday	1600-1730 hrs	Panel Discussion Module-3	Faculty of Module-3
04 Dec 17	Monday	9:30 Hrs to 17:00 Hrs	Online Examination -RS & GIS Applications	Edusat Team