



# IIRS Outreach Program

## *Distance Learning Program*

On

### **“Basics of Remote Sensing, Geographical Information System and Global Navigation Satellite System”**

#### Time Table

Module	Name of the Module	Duration	
		From	To
1	Remote Sensing and Digital Image Analysis	04-08-2014	26-08-2014
2	Global Navigation Satellite System	27-08-2014	09-09-2014
3	Geographical Information System	12-09-2014	15-10-2014
4	RS & GIS Applications	17-10-2014	14-11-2014

#### **Conducted by**

Indian Institute of Remote Sensing  
Indian Space Research Organisation  
Department of Space, Government of India  
4-Kalidas Road, Dehradun, India

#### **In collaboration with**

Development and Educational Communication Unit (DECU)  
Space Application Centre, Ahmedabad  
Amrita E Learning Research Lab, Amrita University

#### **Under the aegis of**

National Natural Resources Management System (NNRMS)

July 2014

**MODULE 1: REMOTE SENSING & DIGITAL IMAGE ANALYSIS**  
**MODULE COORDINATOR: Ms. Minakshi Kumar (minakshi@iirs.gov.in)**  
**Date: 04 Aug – 26 Aug, 2014**

Date	Day	Time	Topic	Speaker
04 Aug 14	Monday	1600-1700 hrs	Basic Principles of Remote Sensing	Ms. Manu Mehta
		1700-1730 hrs	Interactive Session (Query)	
05 Aug 14	Tuesday	1600-1700 hrs	Earth Observation Sensors and Platforms	Sh. Vinay Kumar
		1700-1730 hrs	Interactive Session (Query)	
07 Aug 14	Thursday	1600-1700 hrs	Spectral Signatures of Different Land cover Features and Visual Image interpretation	Ms. Hina Pande
		1700-1730 hrs	Interactive Session (Query)	
08 Aug 14	Friday	<b>Offline (Morning Session)</b>	<b>RS and Image Interpretation (II) Practical</b>	<b>University Coordinators</b>
		1600-1700 hrs	Microwave Remote Sensing	Sh. Shashi Kumar
		1700-1730 hrs	Interactive Session (Query)	
09 Aug 14		<b>Saturday</b>		
10 Aug 14		<b>Sunday</b>		
11 Aug 14	Monday	1600-1700 hrs	Thermal Remote Sensing	Ms. Shefali Agrawal
		1700-1730 hrs	Interactive Session (Query)	
12 Aug 14	Tuesday	1600-1700 hrs	Digital Image Processing: Basic Concepts Rectification and Registration	Ms. Minakshi Kumar
		1700-1730 hrs	Interactive Session (Query)	
13 Aug 14	Wednesday	1600-1700 hrs	Image Enhancement techniques	Ms. Minakshi Kumar
		1700-1730 hrs	Interactive Session (Query)	
14 Aug 14	Thursday	1600-1700 hrs	Image Classification Techniques and Accuracy Assessment	Ms. Poonam S Tiwari
		1700-1730 hrs	Interactive Session (Query)	
15 Aug 14		<b>Independence Day</b>		
16 Aug 14		<b>Saturday</b>		
17 Aug 14		<b>Sunday</b>		
18 Aug 14		<b>Janamashtami (Vaisnava)</b>		
19 Aug 14	Tuesday	1600-1700 hrs	Hyperspectral Remote Sensing	Ms. Shefali Agrawal / Sh. Vinay Kumar
		1700-1730 hrs	Interactive Session (Query)	
20 Aug 14	Wednesday	1600-1700 hrs	Demonstration: Image Processing	Ms. Minakshi Kumar
		1700-1730 hrs	Interactive Session (Query)	
21 Aug 14	Thursday	<b>Offline - as per computer lab availability; Image Processing Hands-on and Practical Assignment</b>		<b>University Coordinators</b>
22 Aug 14	Friday	1600-1700 hrs	Overview of Open Source Tools – I	Dr. Harish Karnatak
		1700-1730 hrs	Interactive Session (Query)	
23 Aug 14		<b>Saturday</b>		
24 Aug 14		<b>Sunday</b>		
25 Aug 14	Monday	1600-1700 hrs	Overview of Open Source Tools – II	Dr. Harish Karnatak
		1700-1730 hrs	Interactive Session (Query)	
26 Aug 14	Tuesday	<b>Offline - as per computer lab availability; Practical Assignment submission and evaluation Module -1 Complete</b>		<b>University Coordinators</b>

**MODULE 2: GLOBAL NAVIGATION SATELLITE SYSTEM**  
**MODULE COORDINATOR: Shri Ashutosh Bhardwaj (ashutosh@iirs.gov.in)**  
**Date: 27 August – 09 Sep, 2014**

Date	Day	Time	Topic	Speaker
27 Aug 14	Wednesday	1600-1700 hrs	Introduction to GPS and GNSS	Er. Ashutosh Bhardwaj
		1700-1730 hrs	Interactive Session (Query)	
28 Aug 14	Thursday	1600-1700 hrs	GPS receivers, processing methods, errors and accuracy	Er. Ashutosh Bhardwaj
		1700-1730 hrs	Interactive Session (Query)	
29 Aug 14	<b>Ganesh Chaturthi</b>			
30 Aug 14	<b>Saturday</b>			
31 Aug 14	<b>Sunday</b>			
01 Sep 14	Monday	1600-1700 hrs	Satellites based Augmentation systems	Er. P.L.N.Raju
		1700-1730 hrs	Interactive Session (Query)	
02 Sep 14	Tuesday	1600-1700 hrs	GPS signal characteristics, Data formats (broadcast, precise ephemeris)	Er. S Raghavendra
		1700-1730 hrs	Interactive Session (Query)	
03 Sep 14	Wednesday	<b>Offline (Morning Session)</b>	Demonstration on Data collection using Geodetic receivers <b>(pre-recorded)</b>	<b>Er. S Raghavendra (pre-recorded)</b>
		1600-1700 hrs	Mobile Mapping	Dr. B.D. Bharath
		1700-1730 hrs	Interactive Session (Query)	
04 Sep 14	Thursday	1600-1700 hrs	Data Combination/Advances in GNSS	Er. S Raghavendra
			Interactive Session (Query)	
05 Sep 14	Friday	1600-1700 hrs	GNSS Radio Occultation	SAC, ISRO
		1700-1730 hrs	Interactive Session (Query)	
06 Sep 14	<b>Saturday</b>			
07 Sep 14	<b>Sunday</b>			
08 Sep 14	Monday	1600-1700 hrs	GAGAN	ISAC, ISRO
		1700-1730 hrs	Interactive Session (Query)	
09 Sep 14	Tuesday	1600-1700 hrs	IRNSS	ISAC, ISRO
		1700-1730 hrs	Interactive Session (Query)	
11 Sep 14	Thursday	<b>Exam Module-1 Morning Session</b>		

**MODULE 3: GEOGRAPHICAL INFORMATION SYSTEM**  
**MODULE COORDINATOR: Shri Prasun Kumar Gupta (prasun@iirs.gov.in)**  
**Date: 12 Sept – 15 Oct, 2014**

Date	Day	Time	Topic	Speaker
12 Sep 14	Friday	1600-1700 hrs.	Introduction to GIS	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
<b>13 Sep 14</b>	<b>Saturday</b>			
<b>14 Sep 14</b>	<b>Sunday</b>			
15 Sept 13	Monday	1600-1700 hrs.	Geographic Phenomena, Concepts and examples	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
16 Sept 13	Tuesday	1600-1700 hrs.	Data Inputting and Editing in GIS	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
17 Sept 13	Wednesday	1600-1700 hrs.	Non-Spatial Data Models	Dr. Harish Karnatak
		1700-1730 hrs.	Interactive Session (Query)	
18 Sep 14	Thursday	1600-1700 hrs.	Database concepts, Spatial Data Models Data formats and structures	Dr. Sameer Saran
		1700-1730 hrs.	Interactive Session (Query)	
19 Sept 14	Friday	1600-1700 hrs.	Demo of QGIS Software – Session 01: (Introduction to Open source (& Free) GIS s/w): <ul style="list-style-type: none"> <li>• Adding GIS Data</li> <li>• Attribute table &amp; identity tool</li> <li>• Change symbology</li> <li>• Create map composers</li> </ul>	Sh. Kapil Oberai
		1700-1730 hrs.	Interactive Session (Query)	
<b>20 Sep 14</b>	<b>Saturday</b>			
<b>21 Sep 14</b>	<b>Sunday</b>			
22 Sept 14	Monday	1600-1700 hrs.	Map Projection Concepts & Use in RS & GS	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
23 Sept 14	Tuesday	1600-1700 hrs.	Demo of QGIS Software – Session 02: (Plugins, Projection & Geo-referencing) <ul style="list-style-type: none"> <li>• Manage plugins</li> <li>• CRS &amp; EPSG</li> <li>• Geo-referencing &amp; Tie-points</li> <li>• RMSE &amp; Rectification</li> </ul>	Sh. Prasun Kr. Gupta
		1700-1730 hrs.	Interactive Session (Query)	
24 Sept 14	Wednesday	1600-1700 hrs.	Demo of QGIS Software – Session 03: (Data Creation/Vector Generation) <ul style="list-style-type: none"> <li>• Digitization</li> <li>• Setting digitizing environment</li> <li>• Adding attributes to layer</li> <li>• Editing digitized layer</li> </ul>	Sh. Kapil Oberai
		1700-1730 hrs.	Interactive Session (Query)	
25 Sept 14	Thursday	1600-1700 hrs.	Spatial Analysis- Introductory Concepts and Overview	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
26 Sept 14	Friday	1600-1700 hrs.	Spatial Analysis- Functionality and Tools	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
<b>27 Sep 14</b>	<b>Saturday</b>			
<b>28 Sep 14</b>	<b>Sunday</b>			
29 Sept 14	Monday	1600-1700 hrs.	Demo of QGIS Software – Session 04: (Attribute & Spatial Queries) <ul style="list-style-type: none"> <li>• Attribute Queries</li> <li>• Spatial Queries</li> <li>• <b>NEW:</b> Linking spatial &amp; non-spatial data</li> </ul>	Sh. Prasun Kr. Gupta
		1700-1730 hrs.	Interactive Session (Query)	
30 Sept 14	Tuesday	1600-1700 hrs.	PostGRE/ PostGIS & Acquainting PostGIS through a mock experience	Sh. Kapil Oberai
		1700-1730 hrs.	Interactive Session (Query)	
01Oct 14	Wednesday	1600-1700 hrs.	Geoserver Essentials- Open layers, Web Services & mock Demo	Dr. Harish Karnatak
		1700-1730 hrs.	Interactive Session (Query)	
02 Oct 14	<b>Mahatma Gandhi's B'day</b>			
03 Oct 14	<b>Dussehra (Vijay Dashmi)</b>			
04 Oct 14	<b>Saturday</b>			
05 Oct 14	<b>Sunday</b>			

06 Oct 14	<b>Idu'l Zuha (Bakrid)</b>			
07 Oct 14	Tuesday	1600-1700 hrs.	Catalogue Services- Geonetwork and mock demo	Dr. Sameer Saran
		1700-1730 hrs.	Interactive Session (Query)	
08 Oct 14	Wednesday	1600-1700 hrs.	Map & 3D Visualization	Sh. Ashutosh K Jha
		1700-1730 hrs.	Interactive Session (Query)	
09 Oct 14	Thursday	1600-1700 hrs.	Open Source GIS- Transparent Governance (Case Study)	Dr. Harish Karnatak
		1700-1730 hrs.	Interactive Session (Query)	
10 Oct 12	Friday	1600-1700 hrs.	Data Quality & Policies OGC, NSDI & GSDI initiatives; Discussion on Internet resources	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
<b>11 Oct 14</b>	<b>Saturday</b>			
<b>12 Oct 14</b>	<b>Sunday</b>			
13 Oct 14	Monday	1600-1700 hrs.	Advances/Trends in GIS	Sh. P.L.N Raju
		1700-1730 hrs.	Interactive Session (Query)	
14 Oct 14	Tuesday	1600-1700 hrs.	Network Analysis	Sh. Harishankar
		1700-1730 hrs.	Interactive Session (Query)	
<b>16 Oct 14</b>	<b>Thursday</b>	<b>Module-3 Exam Morning Session</b>		

Date: 17 Oct – 14 Nov, 2014

Date	Day	Time	Topic	Speaker
17 Oct 14	Friday	1600-1700 hrs	Operational Remote Sensing Dissemination and societal benefits	Dr. Y.V.N Krishnamurthy Director, IIRS
		1700-1730 hrs	Interactive Session (Query)	
18 Oct 14	<b>Saturday</b>			
19 Oct 14	<b>Sunday</b>			
20 Oct 14	Monday	1600-1700 hrs	Coastal Zone Management	Dr. D. Mitra
		1700-1730 hrs	Interactive Session (Query)	
21 Oct 14	Tuesday	1600-1700 hrs	Remote Sensing and GIS Applications in Soil Resource Management	Dr. Suresh Kumar
		1700-1730 hrs	Interactive Session (Query)	
27 Oct 14	Monday	1600-1700 hrs	RS & GIS Applications in Forestry and Ecology	Dr. Sarnam Singh
		1700-1730 hrs	Interactive Session (Query)	
28 Oct 14	Tuesday	1600-1700 hrs	Biodiversity	Dr. Sarnam Singh
		1700-1730 hrs	Interactive Session (Query)	
29 Oct 14	Wednesday	1600-1700 hrs	Geology and Geomorphology	Dr. R.S Chatterjee
		1700-1730 hrs	Interactive Session (Query)	
30 Oct 14	Thursday	1600-1700 hrs	Engineering Geology with emphasis on landslide studies.	Dr. P.K.C.Ray
		1700-1730 hrs	Interactive Session (Query)	
31 Oct 14	Friday	1600-1700 hrs	Remote Sensing an GIS Applications in Inventory & Crop Yield Forecasting	Dr. S K Saha
		1700-1730 hrs	Interactive Session (Query)	
01 Nov 14	<b>Saturday</b>			
02 Nov 14	<b>Sunday</b>			
03 Nov 14	Monday	1600-1700 hrs	Marine & Atmospheric Application	Dr. A.K Mishra
		1700-1730 hrs	Interactive Session (Query)	
04 Nov 14	Tuesday	1600-1700 hrs	RS & GIS Applications to Water Resources Management	Dr. S.P Aggarwal
		1700-1730 hrs	Interactive Session (Query)	
05 Nov 14	Wednesday	1600-1700 hrs	Hydrogeology/ Ground Water	Dr. S.K. Srivastav
		1700-1730 hrs	Interactive Session (Query)	
06 Nov 14	Thursday	1600-1700 hrs	Human Settlement Analysis High resolution satellite data analysis	Dr. Sandeep Maithani
		1700-1730 hrs	Interactive Session (Query)	
07 Nov 14	Friday	1600-1700 hrs	Disaster Management	Dr. S.K Srivastav
		1700-1730 hrs	Interactive Session (Query)	
08 Nov 14	<b>Saturday</b>			
09 Nov 14	<b>Sunday</b>			
10 Nov 14	Monday	1600-1700 hrs	Satellite Data Reception ,Processing & Distribution	NRSC,ISRO
		1700-1730 hrs	Interactive Session (Query)	
11 Nov 14	Tuesday	1600-1700 hrs	Metrological Applications	Sh. P.C Joshi
		1700-1730 hrs	Interactive Session (Query)	
12 Nov 14	Wednesday	1600-1700 hrs	Atmospheric and climate studies	Ms.Suchita Srivastava
		1700-1730 hrs	Interactive Session (Query)	
13 Nov 14	Thursday	<b>Exam - Module 3 (Morning Session)</b>		
14 Nov 14	Friday	<b>Module -4 completed</b>		
21 Nov	Friday	<b>Exam - Module 4 (Morning Session)</b>		