

**Fifteenth IIRS Outreach Programme**  
**on**  
**Basics of “Remote Sensing, Geographical Information**  
**System and Global Navigation Satellite System”**  
**August 10 – November 27, 2015**

Tentative Time Table

Module	Name of the Module	Duration	
		From	To
1	Remote Sensing and Digital Image Analysis	10-08-2015	05-09-2015
2	Global Navigation Satellite System	07-09-2015	24-09-2015
3	Geographical Information System	28-09-2015	27-10-2015
4	RS & GIS Applications	29-10-2015	27-11-2015



Conducted by

**Indian Institute of Remote Sensing**

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

Technical Support from

CEC – UGC, New Delhi  
CIET - NCERT, New Delhi  
A-VIEW – NMEICT, Amrita University, Coimbatore  
DECU-ISRO, Ahmedabad

Under the aegis of

National Natural Resources Management System (NNRMS)

April, 2015

**MODULE 1: REMOTE SENSING & DIGITAL IMAGE ANALYSIS**  
**MODULE COORDINATOR: Ms. Minakshi Kumar (minakshi@iirs.gov.in)**  
**Date: 10 Aug – 03 Sep, 2015**

Date	Day	Time	Topic
10 Aug 15	Monday	1600-1700 hrs	Introductory Lecture
11 Aug 15	Tuesday	1600-1700 hrs	Basic Principles of Remote Sensing
		1700-1730 hrs	Interactive Session (Query)
13 Aug 15	Thursday	1600-1700 hrs	Earth Observation Sensors and Platforms
		1700-1730 hrs	Interactive Session (Query)
14 Aug 15	Friday	1600-1700 hrs	Spectral Signatures of Different Land cover Features and Visual Image interpretation
		1700-1730 hrs	Interactive Session (Query)
<b>15 Aug 15</b>	<b>Saturday (Independence Day)</b>		
<b>16 Aug 15</b>	<b>Sunday</b>		
17 Aug 15	Monday	<b>Offline (Morning Session)</b>	RS and Image Interpretation (II) Practical
		1600-1700 hrs	Microwave Remote Sensing
		1700-1730 hrs	Interactive Session (Query)
18 Aug 15	Tuesday	1600-1700 hrs	Thermal Remote Sensing
		1700-1730 hrs	Interactive Session (Query)
19 Aug 15	Wednesday	1600-1700 hrs	Digital Image Processing: Basic Concepts Rectification and Registration
		1700-1730 hrs	Interactive Session (Query)
20 Aug 15	Thursday	1600-1700 hrs	Image Enhancement techniques
		1700-1730 hrs	Interactive Session (Query)
21 Aug 15	Friday	1600-1700 hrs	Image Classification Techniques and Accuracy Assessment
		1700-1730 hrs	Interactive Session (Query)
<b>22 Aug 15</b>	<b>Saturday</b>		
<b>23 Aug 15</b>	<b>Sunday</b>		
24 Aug 15	Monday	<b>Offline - as per computer lab availability</b>	Image Processing Hands-on
25 Aug 15	Tuesday	<b>Offline (Morning Session)</b>	Image Processing Hands-on and Practical Assignment
		1700-1730 hrs	Interactive Session (Query)
26 Aug 15	Wednesday	1600-1700 hrs	Demonstration: Image Processing
		1700-1730 hrs	Interactive Session (Query)
27 Aug 15	Thursday	To be decided	
<b>28 Aug 15</b>	<b>Friday Onam</b>		
<b>29 Aug 15</b>	<b>Saturday</b>		
<b>30 Aug 15</b>	<b>Sunday</b>		
31 Aug 15	Monday	1600-1700 hrs	Hyperspectral Remote Sensing
		1700-1730 hrs	Interactive Session (Query)
1 Sep 15	Tuesday	1600-1700 hrs	Overview of Open Source Tools – I
		1700-1730 hrs	Interactive Session (Query)
2 Sep 15	Wednesday	1600-1700 hrs	Overview of Open Source Tools – II
		1700-1730 hrs	Interactive Session (Query)
3 Sep 15	Thursday	<b>Offline - as per computer lab availability</b>	Practical Assignment submission and evaluation.

**MODULE 2: GLOBAL NAVIGATION SATELLITE SYSTEM**  
**MODULE COORDINATOR: Shri Ashutosh Bhardwaj (ashutosh@iirs.gov.in)**  
**Date: 07 Sep – 21 Sep, 2015**

<b>Date</b>	<b>Day</b>	<b>Time</b>	<b>Topic</b>
7 Sep 15	Monday	1600-1700 hrs	Introduction to GPS and GNSS
		1700-1730 hrs	Interactive Session (Query)
8 Sep 15	Tuesday	1600-1700 hrs	GPS receivers, processing methods, errors and accuracy
		1700-1730 hrs	Interactive Session (Query)
9 Sep 15	Wednesday	1600-1700 hrs	Satellites based Augmentation systems
		1700-1730 hrs	Interactive Session (Query)
10 Sep 15	Thursday	1600-1700 hrs	GPS signal characteristics, Data formats (broadcast, precise ephemeris)
		1700-1730 hrs	Interactive Session (Query)
11 Sep 15	Friday	1600-1700 hrs	Demonstration on Data collection using Geodetic receivers (recorded)
		1700-1730 hrs	Interactive Session (Query)
<b>12 Sep 15</b>	<b>Saturday</b>		
<b>13 Sep 15</b>	<b>Sunday</b>		
14 Sep 15	Monday	1600-1700 hrs	Mobile Mapping
			Interactive Session (Query)
15 Sep 15	Tuesday	1600-1700 hrs	Indian Regional Navigation Satellite System (IRNSS)
		1700-1730 hrs	Interactive Session (Query)
16 Sep 15	Wednesday	1600-1700 hrs	GPS Aided and GEO Augmented Navigation (GAGAN)
		1700-1730 hrs	Interactive Session (Query)
<b>17 Sep 15</b>	<b>Ganesh Chaturthi</b>		
<b>19 Sep 15</b>	<b>Saturday</b>		
<b>20 Sep 15</b>	<b>Sunday</b>		
21 Sep 15	Monday	1600-1700 hrs	GNSS Radio Occultation
		1700-1730 hrs	Interactive Session (Query)
<b><i>Module -2 Complete</i></b>			
<b>22 Sep 15</b>	<b>Thursday</b>	<b>Exam Module-1 Morning Session</b>	

**MODULE 3: GEOGRAPHICAL INFORMATION SYSTEM**  
**MODULE COORDINATOR: Shri Prasun Kumar Gupta (prasun@iirs.gov.in)**  
**Date: 24 Sept – 27 Oct, 2015**

Date	Day	Time	Topic
24 Sep 15	Thursday	1600-1700 hrs	Introduction to GIS
		1700-1730 hrs	Interactive Session (Query)
25 Sept 15	Friday	1600-1700 hrs	Geographic Phenomena, Concepts and examples
		1700-1730 hrs	Interactive Session (Query)
28 Sept 15	Monday	1600-1700 hrs	Data Inputting and Editing in GIS
		1700-1730 hrs	Interactive Session (Query)
29 Sept 15	Tuesday	1600-1700 hrs	Non-Spatial Data Models
		1700-1730 hrs	Interactive Session (Query)
30 Sept 15	Wednesday	1600-1700 hrs	Database concepts and Spatial Data Models Data formats and structures
		1700-1730 hrs	Interactive Session (Query)
01 Oct 15	Thursday	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>
		1700-1730 hrs	Interactive Session (Query)
<b>02 Oct 15</b>	<b>Mahatma Gandhi's B'day</b>		
05 Oct 15	Monday	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>
		1700-1730 hrs	Interactive Session (Query)
06 Oct 15	Tuesday	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>
		1700-1730 hrs	Interactive Session (Query)
7 Oct 15	Wednesday	1600-1700 hrs	Map Projection Concepts & Use in RS & GIS
		1700-1730 hrs	Interactive Session (Query)
8 Oct 15	Thursday	1600-1700 hrs	Spatial Analysis- Introductory Concepts and Overview
		1700-1730 hrs	Interactive Session (Query)
9 Oct 15	Friday	1600-1700 hrs	Spatial Analysis- Functionality and Tools
		1700-1730 hrs	Interactive Session (Query)
<b>10 Oct 15</b>	<b>Saturday</b>		
<b>11 Oct 15</b>	<b>Sunday</b>		
12 Oct 15	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> </ul> <b>NEW:</b> Linking spatial & non-spatial data
		1700-1730 hrs	Interactive Session (Query)
13 Oct 15	Tuesday	1600-1700 hrs	Spatial Data Management using RDBMS-Demo on PostGRE SQL+ Post GIS
		1700-1730 hrs	Interactive Session (Query)
14 Oct 15	Wednesday	1600-1700 hrs	Geo-Web Services Concept & Applications-Live Demo
		1700-1730 hrs	Interactive Session (Query)
15 Oct 15	Thursday	1600-1700 hrs	Catalogue Services- Geonetwork and mock demo
		1700-1730 hrs	Interactive Session (Query)
16 Oct 15	Friday	1600-1700 hrs	Map & 3D Visualization
		1700-1730 hrs	Interactive Session (Query)
<b>17 Oct 15</b>	<b>Saturday</b>		
<b>18 Oct 15</b>	<b>Sunday</b>		
19 Oct 15	Monday	1600-1700 hrs	Data Quality & Policies OGC, NSDI & GSDI initiatives. Discussion on Internet resources
		1700-1730 hrs	Interactive Session (Query)
20 Oct 15	Tuesday	1600-1700 hrs	Network Analysis
		1700-1730 hrs	Interactive Session (Query)
<b>21 Oct 15</b>	<b>Masha Asthami</b>		
<b>22 Oct 15</b>	<b>Dussehra</b>		
26 Oct 15	Monday	1600-1700 hrs.	Advances/Trends in GIS
		1700-1730 hrs.	Interactive Session (Query)
27 Oct 15	Tuesday	1600-1700 hrs.	ISRO Bhuvan Geo Portal Applications
		1700-1730 hrs.	Interactive Session (Query)

**MODULE 4: RS & GIS APPLICATION**  
**MODULE COORDINATOR: Dr. S.K Srivastav (sksrivastav@iirs.gov.in)**  
**Date: 29 Oct – 26 Nov, 2015**

Date	Day	Time	Topic
29 Oct 15	Thursday	1600-1700 hrs	To be decided
		1700-1730 hrs	Interactive Session (Query)
30 Oct 15	Friday	1600-1700 hrs	Remote Sensing and GIS Applications in Soil Resource Assessment
		1700-1730 hrs	Interactive Session (Query)
<b>31 Oct 15</b>	<b>Saturday</b>		
<b>1 Nov 15</b>	<b>Sunday</b>		
2 Nov 15	Monday	1600-1700 hrs	Remote Sensing Applications in Agriculture- Crop Inventory & Yield Forecasting
		1700-1730 hrs	Interactive Session (Query)
3 Nov 15	Tuesday	1600-1700 hrs	RS & GIS Applications in Forestry and Ecology
		1700-1730 hrs	Interactive Session (Query)
4 Nov 15	Wednesday	1600-1700 hrs	Biodiversity Characterization at landscape level Using Satellite Remote Sensing & GIS
		1700-1730 hrs	Interactive Session (Query)
5 Nov 15	Thursday	1600-1700 hrs	Engineering Geology with emphasis on landslide studies
		1700-1730 hrs	Interactive Session (Query)
6 Nov 15	Friday	1600-1700 hrs	Geology and Geomorphology
		1700-1730 hrs	Interactive Session (Query)
<b>07 Nov 15</b>	<b>Saturday</b>		
<b>08 Nov 15</b>	<b>Sunday</b>		
09 Nov 15	Monday	1600-1700 hrs	Space-enabled Products & Services for Disaster Management :Indian Initiatives
		1700-1730 hrs	Interactive Session (Query)
<b>11 Nov 15</b>	<b>Diwali</b>		
<b>14 Nov 15</b>	<b>Saturday</b>		
<b>15 Nov 15</b>	<b>Sunday</b>		
16 Nov 15	Monday	1600-1700 hrs	RS & GIS Applications to Water Resources Management
		1700-1730 hrs	Interactive Session (Query)
17 Nov 15	Tuesday	1600-1700 hrs	Application of RS & GIS in Hydrogeology
		1700-1730 hrs	Interactive Session (Query)
18 Nov 15	Wednesday	1600-1700 hrs	RS & GIS for Coastal Zone Management
		1700-1730 hrs	Interactive Session (Query)
19 Nov 15	Thursday	1600-1700 hrs	Remote Sensing Application to Atmospheric & Marine Environment
		1700-1730 hrs	Interactive Session (Query)
20 Nov 15	Friday	1600-1700 hrs	Atmospheric Trace Gases Studies
		1700-1730 hrs	Interactive Session (Query)
23 Nov 15	Monday	1600-1700 hrs	To be decided
		1700-1730 hrs	Interactive Session (Query)
24 Nov 15	Friday	1600-1700 hrs	Urban Spatial growth modeling
		1700-1730 hrs	Interactive Session (Query)
25 Nov 15	Monday	1600-1700 hrs	RS & GIS Application in Urban & Regional Planning
		1700-1730 hrs	Interactive Session (Query)
<b>Module -4 Complete</b>			
<b>27 Nov 15</b>			<b>Exam - Module 3 (Morning Session)</b>
<b>30 Nov 15</b>			<b>Exam - Module 4 (Morning Session)</b>