

EDUSAT based Distance Learning Program in Remote Sensing, GIS and GPS - Sharing Experiences of IIRS, India

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**Extended Abstract**

Open and distance education or distance learning is becoming popular over the years, more due to the advent of Information and Communication Technology (ICT), access from anywhere, learn at own phase and affordability etc. Indian government has recognized the massive demand of human resources required for promoting integrated national development and global understanding and established Open Distance Learning University i.e. IGNOU (Indira Gandhi Open University) at national level way back 1985. India further gave importance to distance learning by launching satellite called EDUSAT and making it available to all concerned institutions and departments to utilize it for educational purposes. National education bodies like National Council of Education Research and Training (NCERT), All India Council for Technical Education, University Grants Commission, IGNOU, State level Educational Councils and many others taken advantage of the EDUSAT facility and launched distance learning programs from secondary education at school level to higher education at undergraduate / postgraduate level. The programs are of two types. In case of direct live transmissions, all the connected Centers work in two way interactive modes where the receivers directly interact with the expert and get clarified immediately. They use Satellite Interactive Terminal (SITs) that cost around (USD 6000 approximately). In case of Receive Only Terminal (ROTs) the users receive the transmission but not are able to interact with the experts and costing around USD 1500 per terminal.

EDUSAT provide wide range of educational delivery modes like one way TV broadcast, interactive TV, Video conferencing, computer conferencing, web-based instructions, etc. So far 70 broadcast and interactive networks have been setup so far, out of which 10 networks use national Ku-band beams and the remaining networks are on regional Ku-band and extended-C band national beams. IIRS program is part of Ku-band national beam network. There are 3366 interactive classrooms and 31313 receive only classrooms. (ISRO website [http://www.isro.gov.org/scripts/sat\\_EDUSAT.aspx](http://www.isro.gov.org/scripts/sat_EDUSAT.aspx) accessed on May 26, 2010 & EDUSAT satellite, 2008).

Indian Institute of Remote Sensing (IIRS) which is premier institute in India and actively involved in technology transfer and capacity building at National and International level in the field of Earth Observation and Geo-Information Science has initiated new and innovative EDUSAT Distance Learning Program. The objective of this program is to offer the training course on “Basics of Remote Sensing, GIS and GPS” at the National level to Universities remote Sensing, GIS and GPS (Figure 1). IIRS has taken up the challenging and Innovative idea of

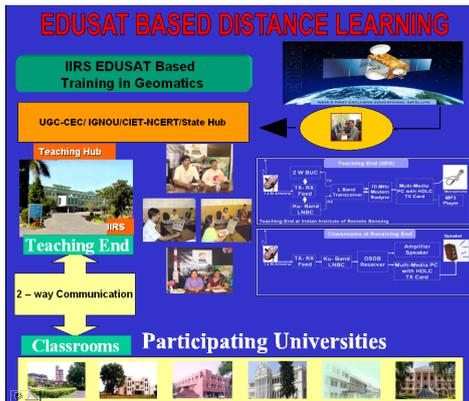


Figure 1: A. Concept of EDUSAT based Distance Learning at IIRS. B. Live lecture and interactive session is in progress from Teaching Studio at IIRS

offering distance learning program i.e. EDUSAT based training program for the first time and conducted four such programs in the last three years (i.e. 2007 to 2009) for fifty universities / institutions at postgraduate level spread across India, training more than 3126 students (Table 1). Live video streamed output generated using public domain free multimedia player, encoder and streamer software VLC (Video LAN Client) and transmitted through EDUSAT national beam network. The universities / technical institutions (classrooms) equipped with EDUSAT SITs/ ROTs received our programs through an Internet Protocol (IP), played with VLC player and projected it with LCD for the benefit of many students. Interactive sessions were conducted followed by the live lecture / practical demo using Microsoft Net meeting that supports audio and video (P.L.N. Raju et. al, 2008). Most of the Distance Learning environments are static nature with limited live and interactive activity and whereas this program is completely live and most effective way of interaction and therefore it is unique and innovative.

## References

P.L.N. Raju, V.K. Dadhwal, Mamta Verma, C. Jeganathan, Minakshi Kumar and Anil Kumar, 2008, "Indian Experience for University Level Capacity Building in Geomatics using EDUSAT Satellite", The International Achieves of the Photogrammetry, Remote Sensing and Spatial Information Science, Vol. XXXVII, Part B6a, Beijing 2008.

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**TABLE 1: TOTAL NUMBER OF PARTICIPANTS ATTENDED IIRS EDUSAT COURSE**

<b>S. No.</b>	<b>Name of University</b>	<b>Total Students</b>
1	Pune University	190
2	NIT, Warangal	54
3	Anna Univ., Chennai	66
4	Jamia Milia Islamia	34
5	Banasthali Univ.	220
6	JNU, Delhi	116
7	Hari Singh Gour Univ.	111
8	Madurai Kamaraj Univ	128
9	Thanjavur, Tamil Univ.	17
10	Rajiv Gandhi Univ	50
11	Kashmir Univ.	58
12	Mysore Univ.	59
13	Tripura Univ.	14
14	BIT, Ranchi	178
15	IIT Roorkee	12
16	Presidency College, Kolkata	23
17	H.N.B.G.U, Srinagar	16
18	M.D.S. University, Ajmer	122
19	Baramulla University	52
20	Jammu University	76
21	HARSAC, Hissar	37
22	Gurunanak Khalsa College	02
23	Kurukshetra Univ.	26
24	GJUST	10
25	Gujarat University	147
26	CEPT University	263
27	MG Science Institute	06
28	Gauhati Univ., Assam	80
29	Bharathiar Univ.Coimbatore	11
30	PSG College, Coimbatore	139
31	Madras University	44
32	Nagpur University	47
33	Shivaji Univ.	102
34	JSAC	11
35	Jadhavpur Univ.	44
36	IARI Delhi	60
37	National Bureau of Plant Genetic Resources, New Dehi	3
38	Indian Agriculture Statistics Research Institute, New Delhi	1
39	Silchar Univ. Assam	10
40	ADM College	43
41	Walchand College of Engg.	93
42	Punjab University	70
43	BHU, Varanasi	45
44	Forest Research Institute, Dehradun	56
45	Mizoram University	93
46	Tezpur University	11
47	Manipur University	15
48	Amrita Vishwa Vidyapeethan University	33
49	Delhi University	26
50	New College Kohlapur	02
<b>TOTAL</b>		<b>3126</b>