



INTRODUCTION TO REMOTE SENSING



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COURSE DURATION : 4 weeks (28 Jan'19 - 22 Feb'19)

TYPE OF COURSE : Rerun| Elective | UG/PG

EXAM DATE : 31 Mar 2019

INDUSTRIES APPLICABLE TO : Geoinformatics companies, e.g NIIT, ESRI India, Leica Geoinformatics, MapmyIndia etc.

COURSE OUTLINE :

The proposed course provides basic understanding about satellite based Remote Sensing technology. Presently, remote sensing datasets available from various earth orbiting satellites are being used extensively in various domains including in civil engineering, water resources, earth sciences, transportation engineering, navigation etc. Google Earth has further made access to high spatial resolution remote sensing data available to non-experts with great ease.

ABOUT INSTRUCTOR :

Dr. Arun K. Saraf is Ph. D. (Remote Sensing) from University of Dundee, United Kingdom. Presently he is working as Professor in the Department of Earth Sciences, Indian Institute of Technology, Roorkee, and teaches courses on Remote Sensing, Digital Image Processing, Geographic Information Systems (GIS), Advanced GIS, Geomorphology, Geohydrology etc. to under- and post-graduate students of Geological Technology and Applied Geology. He was also Head of Department of Earth Sciences between Jan. 2012 – Feb. 2015. He was first in the country to introduce GIS course to post-graduate students in the year 1990. In 1986, he was awarded “National Fellowship to Study Abroad” by Govt. of India for his doctoral degree.

COURSE PLAN :

- Week 01** : What is satellite based remote sensing? | Development of remote sensing technology and advantages | Different platforms of remote sensing | EM spectrum, solar reflection and thermal emission remote sensing | Interaction of EM radiation with atmosphere including atmospheric scattering, absorption and emission.
- Week 02** : Interaction mechanisms of EM radiation with ground, spectral response curves | Principles of image interpretation | Multi-spectral scanners and imaging devices | Salient characteristics of LANDSAT, IRS, Cartosat, ResourceSat etc. sensors | Image characteristics and different resolutions in Remote Sensing.
- Week 03** : Image interpretation of different geological landforms, rock types and structures | Remote Sensing integration with GIS and GPS | Georeferencing Technique | Basic image enhancement techniques | Spatial filtering techniques.
- Week 04** : Image classification techniques | InSAR Technique and its applications | Hyperspectral Remote Sensing | Integrated applications of RS and GIS in groundwater studies | Limitations of Remote Sensing Technique.