Course Type	Course Code	Name of Course	L	T	P	Credit
DC	NGPC507	**Remote Sensing: Principles and Data Acquisition System**	3	1	0	4

Course Objective
Understanding of Electromagnetic Radiation and their interaction with atmosphere and different surface features. Understanding spectral signature for delineation of different objects. Understanding satellite geometry and different sensor characteristics
Learning Outcomes
Upon successful completion of this course, students will be able to • Understanding fundamental of Remote Sensing Principles and Data Acquisition System.

Sl. No.	Description of Lectures	Lecture Hrs. (L + T)	Out come
1.	Physics of Remote Sensing, Electromagnetic Radiation, EMR Spectrum. Sources of EMR and Governing Laws, Interaction of EMR with atmosphere. Scattering, refraction, reflection, diffraction. Radiometric quantities	8L + 2T	Basic principle of Remote Sensing
2.	Atmospheric window, generalize absorption spectrum. Interaction of EMR with different surficial feature on the earth. spectral signature, spectral reflectance, spectral response of vegetation, water, soil, etc. Application of spectral bands.	9L + 3T	Interaction of EMR with atmosphere and different surface features
3.	Remote Sensing Platforms: Ground borne, airborne and space borne.Passive and active remote sensing. Geometry of satellite remote sensing, Image reference system: Path and Row.	8L + 3T	Remote Sensing Platforms, Geometry of satellite remote sensing
4.	Sensor resolution: Spatial, spectral, radiometric, and temporal. Types of sensors: single, multiband opto- mechanical, thermal sensors, LISS; Types of detectors and their characteristics	8L + 3T	Types of sensors, Types of detectors and their characteristics
5.	Principle and operations of different optical-infrared sensor array. Principle of microwave remote sensing and sensors. Applications of different sensor bands, Importance of Remote Sensing satellites: Landast, Seasat, SPOT, IRS, ASTER, and IKONS, recent space missions etc	9L + 3T	Data acquisition principle and Important Remote Sensing satellites/ space missions
	Total (L+T)	42L+14T	

Text Books

1. B. Bhatta., Remote Sensing and GIS.
2. Lillesand TM and Kiefer R W, Remote Sensing and Image Interpretation, John Wiley Publication

Reference Books

1. Seigel, B S and Gillespie, Alan, Remote Sensing in Geology, John Wiley Publication
2. George Joseph, Fundamentals of Remote Sensing
3. M. Anji Reddy, Remote Sensing and Geographical Information systems
4. Thomas M. Lillesand, Ralph W. Kiefer and Jonathan W. Chipman, Remote Sensing and Image Interpretation
5. Rafael C. Gonzalez, Richard E. Woods and Steven L. Eddins, Digital Image Processing Using Matlab
6. Floyd F. Sabins, Remote sensing: principles and interpretation
7. Jensen, J.R. 2007. *Remote Sensing of the Environment - an Earth Resource Perspective*.
8. Rao, D.P. Remote Sensing for Earth Resources, AEG Publication