

Department of Geography

Curriculum Plan 2024-25

B.A (Hons) Sem III, Year II

Name of the Teacher: Dr. Akhilesh Kumar Mishra

Paper Name & Paper Code: FUNDAMENTALS OF REMOTE SENSING (PRACTICAL)

Unit No.	Name of Topic	Tutorial/Assignment/Presentation, etc.	Allocation of Lectures	Assessment Tasks	Teaching and Learning Activity
1	Introduction to Remote sensing: Meaning and definition, Historical Evolution of Remote Sensing, Platforms (Ground, Air, Space), Types of Remote sensing (Passive and active), Resolutions types (Spatial, spectral, Radiometric, Temporal), Satellite data sources/search engines: (EARTHDATA, USGS, GLCF, LP-DAAC), Software: (QGIS, Arc GIS, ERDAS, IDRISI, TerrSet, ENVI, R, SAGA)	Assignment and presentation	10 (1 st Aug,2024–16 th Aug, 2024)	Assignments, Hands-on Practice	Classroom Lectures, PPTs, discussions, Practical hands on training.
2	Aerial Photos: Geometry and Types of Aerial Photography, Stereoscope, Annotation, Interpretation Keys, and Interpretation • Calculation of photo scale • Orientation of Aerial Photo • Annotation and Interpretation Keys	Assignment and presentation	16 (22 nd Aug, 2024–13 th Sep, 2024)	Hands-on Practice, practical	Classroom Lectures, PPTs, discussions, Practical hands on training.
3	Satellite Remote Sensing: Principles. Satellite Remote	Assignment and presentation	12 (19 th Sept, 2024-4 th Oct, 2024)	Assignments, Hands-on Practice	Classroom Lectures, PPTs, discussions,

	<p>Sensing: Principles, Resolutions, EMR Interaction with Atmosphere and Earth Surface Features; Major Satellites and Sensors (LANDSAT, IRS, IKONOS, SPOT, MODIS, Sentinel, QUICKBIRD, any two) • Downloading Bhuvan Data • Downloading LANDSAT data (EARTHDATA) • Band-wise reflection of EMR</p>				<p>Practical hands on training.</p>
4	<p>Satellite Image Processing: • Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification Basics (Supervised and Unsupervised), DN to reflectance conversion • Geometric Correction</p>	<p>Assignment and presentation</p>	<p>16 (10st Oct, 2024- 7th Nov, 2024)</p>	<p>Assignments, Hands-on Practice</p>	<p>Classroom Lectures, PPTs, discussions, Practical hands on training.</p>
5	<p>Application of Remote Sensing: • Land Use/Land Cover, • Urban Sprawl, • Vegetation Monitoring</p>	<p>Assignment and presentation</p>	<p>10 (8th Nov, 2024- 28th Nov, 2024)</p>	<p>Assignments, Hands-on Practice</p>	<p>Classroom Lectures, PPTs, discussions, Practical hands on training.</p>

E-Resources

Fundamentals of Remote Sensing, Retrieved from:

https://www.ldeo.columbia.edu/res/fac/rsvlab/fundamentals_e.pdf

https://www.iirs.gov.in/iirs/sites/default/files/pdf/2023/Overview_of_Remote_Sensing_and_GIS_Applications_E-Book.pdf

https://webapps.itc.utwente.nl/librarywww/papers_2009/general/principlesremotesensing.pdf

https://www.nateko.lu.se/sites/nateko.lu.se.sv/files/remote_sensing_and_gis_20111212.pdf

https://istncrg.wordpress.com/wp-content/uploads/2019/09/introduction_to_remote_sensing_www.gisman.ir_.pdf

BASIC CONCEPTS OF REMOTE SENSING, Retrieved from:

<https://nptel.ac.in/courses/105108077/module1/lecture1.pdf>

https://www.nrsc.gov.in/sites/default/files/pdf/ebooks/Chap_2_LULC.pdf

<https://oceanservice.noaa.gov/facts/remotesensing.html>

<https://www.britannica.com/technology/aerial-photography>

<https://crisp.nus.edu.sg/~research/tutorial/intro.htm>

<https://www.geospatialworld.net/article/image-interpretation-of-remote-sensing-data/>

<https://gisgeography.com/spatial-data-types-vector-raster/>

<http://rsgislearn.blogspot.com/2007/05/gis-data-type.html>

<http://geoithub.com/spatial-and-non-spatial-data-2/>

https://courses.washington.edu/gis250/lessons/introduction_gis/spatial_data_model.html

https://nptel.ac.in/courses/Webcourse-contents/IIT-KANPUR/ModernSurveyingTech/lectureE_35/E_35_4.htm