

Practical Plan		
Name of the college: Government College of Arts, science and Commerce Sanquelim Goa		
Name of Faculty: Dr. Arati Panshekar	Subject: Geography (Principles of Remote Sensing)	
Paper code: GOG 301	Program: TYBA	Division: Batch 2
Academic year: 2025 - 2026	Semester: V	Total Practicals/Labs: 15
Credits: 1		
Course Objectives: Course Objectives: This course is designed to provide a comprehensive introduction to the fundamental principles and applications of remote sensing. The course will cover the basic concepts, technologies, and techniques used in remote sensing, with a focus on understanding the principles behind the collection and analysis of spatial data. The The Practical component of the course serves as an introduction to geospatial data analysis, focusing on fundamental concepts and practical skills. Participants will gain proficiency in utilizing key tools and techniques for interpreting and analyzing geospatial data.		
Expected Course Outcome: At the end of the successful completion of this course, students will be able to: 1. Comprehend the fundamental principles underlying remote sensing technology. 2. Relate the concepts of data acquisition to the characteristics of dif-ferent remote sensing platforms and sensors. 3. Develop skills in visually interpreting features and patterns in remote sensing imagery as well as in the application of remote sensing data in making informed decisions in agriculture, environmental manage-ment, urban planning, and disaster response. 4. Demonstrate a working knowledge of Remote Sensing tools and func-tionalities for basic geospatial analysis and Develop critical thinking skills for analyzing geospatial data .		
Student Learning Outcome: 1. Understand the basic concepts, types, and historical development of remote sensing.		

2. Identify various sensors, platforms, and how electromagnetic energy interacts with Earth's surface.
3. Explain how remote sensing data is acquired, processed, and interpreted for spatial analysis.
4. Apply remote sensing techniques to real-world applications like agriculture, environment, urban planning, and disaster management.

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments	Reference books
				5. Lillisand. T.M., and Kiefer, P.W., (1998). Remote Sensing and Image Interpretation, John Wiley & Sons, New York.
July	30-06-2025	2	Introduction to Remote Sensing Portals: Creating accounts on Bhuvan and GLOVIS , navigating interface, and data download techniques.	6. Michael Law (2021) Getting to Know ArcGIS Pro 2.8 Fourth Edition, ESRI Press, U.S.A
	07-07-2025	2	Importing raster data into QGIS and understanding raster layer properties.	7. Paul Gibson, and Clare H. Power, (2000). Introductory Remote Sensing: Digital Processing and Applications, Routledge Publisher, London.
	14-07-2025	2	Georeferencing raster images using Geographic and Projected Coordinate Systems .	8. Richards, J. A. and Jia Xiuping (2005). Remote Sensing Digital Image Analysis: An Introduction, 4th Edition, Springer – Verlag, Berlin.
	21-07-2025	2	Understanding elements of image interpretation : tone, texture, pattern, shape, size, shadow, and association.	9. Sarkar A. K. (1997) Practical Geography: A Systematic Approach, Oriental Longman, Calcutta.
	28-07-2025	2	Layer stacking and generating True Color	10. Singh, R.L. and Dutt, P.K. (1979) Elements of Practical Geography, Kalyani Publishers, New Delhi.

			Composite (TCC) and False Color Composite (FCC).
August	04-08-2025	2	Performing Radiometric corrections on raw satellite images.
	11-08-2025	2	Applying Atmospheric corrections using available QGIS plugins or methods.
	18-08-2025	2	Mosaicking raster datasets (e.g., merging multiple image tiles).
25-08-2025 to 30-08-2025 (Chaturthi vacation)			
September	01-09-2025	2	Creating AOI (Area of Interest) and extracting subsets from raster images.
	08-09-2025	2	Generating Hillshade, Slope, Aspect, and Raster Contours using DEM data.
	15-09-2025	2	Creating Viewshade/Visibility analysis using elevation data.
	22-09-2025	2	Performing Pan-sharpening (Resolution Merge) to enhance image quality.
	29-09-2025	2	Deriving Spectral Signature Curves using Semi-Automatic

			Classification Plugin in QGIS	
October	06-10-2025	2	Calculating vegetation and water indices such as NDVI, NDWI, MNDWI, NDBI, SAVI .	
			Performing Focal Analysis (e.g., smoothing, edge detection) on distorted or noisy data.	
	13-10-2025	18-10-2025		