

Practical Plan		
Name of the college: Government college of Arts, Science and Commerce, Sanquelim Goa		
Name of Faculty: Dr. Arati Panshekar	Subject: Geography	
Paper code: GOG 301 Principles of Remote Sensing	Program: BA	Division: A
Academic year: 2026 - 2027	Semester: V	Total Practicals/Labs: 15
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 different 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 in-formed decisions in agriculture, environmental management, urban planning, and disaster response. 4. Demonstrate a working knowledge of Remote Sensing tools and functionalities for basic geospatial analysis and Develop critical thinking skills for analyzing geospatial data		
Student Learning Outcome: Upon successful completion of this practical course, students will be able to: 1. Acquire and preprocess remote sensing data by downloading satellite imagery, importing raster data, georeferencing images, and performing radiometric and atmospheric corrections. 2. Apply image processing techniques such as layer stacking, band combinations (TCC/FCC), mosaicking, AOI creation, and pan sharpening using geospatial software. 3. Generate and analyze terrain products and spectral indices, including hillshade, slope, aspect, raster contours, NDVI, NDWI, MNDWI, NDBI, and SAVI, for geographical interpretation. 4. Interpret and present remote sensing outputs by creating thematic maps, analyzing spectral signatures, and performing spatial analysis for real-world geographical applications		

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments		Reference books
June	30/06/2026	2	Introduction to Remote Sensing Software, Bhuvan and GLOVIS Portals: Account Creation and Data Download		1. Gupta. R.P., (2005). Remote Sensing Geology (2nd Edition), Springer India, New Delhi. 2. Imagine (2009). Tour Guide Imagine, Leica Geosystem GIS & Mapping, Atlanta. 3. Jensen, J. R., (2007). Remote Sensing of the Environment: An Earth Resource Perspective, 2nd Edition, Prentice-Hall Inc., New Jersey. 4. Jude Hemant (2020). Artificial Intelligence Techniques for Satellite Image Analysis Remote Sensing and Digital Image Processing, Springer, India. 5. Lillisand. T.M., and Kiefer, P.W., (1998). Remote Sensing and Image Interpretation, John Wiley & Sons, New York. 6. Michael Law (2021) Getting to Know ArcGIS Pro 2.8 Fourth Edition, ESRI Press, U.S.A 7. Paul Gibson, and Clare H. Power, (2000). Introductory Remote Sensing: Digital Processing and Applications, Routledge Publisher, London. 8. Richards, J. A. and Jia Xiuping (2005). Remote Sensing Digital Image Analysis: An Introduction, 4th Edition, Springer –Verlag, Berlin. 9. Sarkar A. K. (1997) Practical Geography: A Systematic Approach, Oriental Longman, Calcutta. 10. Singh, R.L. and Dutt, P.K. (1979) Elements of Practical Geography, Kalyani Publishers, New Delhi.
June	07/07/2026	2	Downloading and Organizing Satellite Data from Bhuvan and GLOVIS		
July	14/07/2026	2	Importing Raster Data into GIS Software		
July	21/07/2026	2	Georeferencing of Raster Images Using Geographic and Projected Coordinate Systems		
July	28/07/2026	2	Image Interpretation: Elements of Visual Interpretation		
August	04/08/2026	2	Layer Stacking and Band Combination: True Color Composite (TCC)		
August	11/08/2026	2	Layer Stacking and Band Combination: False Color Composite (FCC)		
August	18/08/2026	2	Radiometric and Atmospheric Corrections of Satellite Images		
August	25/08/2026	2	Mosaic Creation of Raster Datasets		
September	01/09/2026	2	Creation of Area of Interest (AOI) and Image Subsetting		
September	08/09/2026	2	Generation of Terrain Maps: Hillshade, Viewshed, Aspect, Slope, and Raster Contours		
September	22/09/2026	2	Pan Sharpening (Resolution Merge) of Satellite Images		
September	29/09/2026	2	Spectral Signature Curve Generation Using the Semi-Automatic Classification Plugin (SCP)		
October	06/10/2026	2	Calculation of Spectral Indices: NDVI, NDWI, MNDWI, NDBI, and SAVI		
October	13/09/2026	2	Focal Analysis and Enhancement of Distorted Raster Data Preparation, Interpretation, and Presentation of Remote Sensing Outputs and Thematic Maps		

*** Assessment Rubrics**

Component	Max Marks
Practical	25