# Practical Plan

**Name of the college: Name of the college:** Government College of Arts, science and Commerce Sanquelim Goa

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| **Name of Faculty: Dr. Arati Panshekar** | **Subject:** Geography | |
| **Paper code: GOS-142 Digital Cartography and Map Design** | **Program: FYBSC** | **Division:** |
| **Academic year: 2025 - 2026** | **Semester: II** | **Total Practicals/Labs: 30** |

**Credits: 2**

**Course Objectives:** 1. Introduce students to the concept of remote sensing, its history, and development.

2. Explore various satellite data products available from platforms like BHUVAN and USGS Earth Explorer.

3. Introduce image interpretations, including the concept of false color composite (FCC) and true color composite (TCC), and the elements involved in image interpretation.

4. Introduce digital image processing techniques such as image enhancement, geometric corrections, atmospheric corrections, and band ratios.

**Expected Course Outcome: Expected Course Outcome:**

By the end of this course, students will be able to:

1. Understand the principles and concepts of remote sensing and its historical development.

2. Access and utilize satellite data products from platforms like BHUVAN and USGS Earth Explorer.

3. Interpret satellite images using concepts like false color composite (FCC) and true color composite (TCC), and understand the elements involved in image interpretation.

4. Manipulate and process satellite images through changing color combinations, layer stacking, layer separations, and image extractions.

**Student Learning Outcome: Student Learning Outcome:**

**After completing this course, students will be able to:**

**Understand basic concepts of Remote Sensing and satellite data sources.**

**Interpret and digitally process satellite images using standard techniques.**

**Apply Remote Sensing in practical studies such as LULC, watershed, and urban analysis.**

| Month | Practicals/Labs Scheduled Date | No. of Practicals/Labs planned | List of Experiments | Reference books |
|---|---|---|---|---|
| January | 02-01-2026 | 2 | Satellite Data Products and Data Portals (BHUVAN and USGS Earth Explorer: overview, data types, and applications) | 1. George Joseph: Fundamentals of Remote Sensing, Second Edition, Universities Press, Hyderabad<br>2. Jensen J. R.: Remote Sensing of the Environment: An Earth Resource Perspective, Pearson Education, Singapore.<br>3. Lillesand, Kiefer and Chipman: Remote sensing and Image Interpretation. 5 Ed. Wiley& sons.<br>4. Reddy Anji M.: Text Book of Remote Sensing and Geographical Information System, BS Publications, Hyderabad, AP<br>5. Rees, W. G.: Physical Principles of Remote Sensing, Second Edition, Cambridge University Press, UK.<br>6. Robinson A. H., Sale, R. D., Morrison, J. L., Muehrcke, P. C.: Elements of Cartography, John Wiley & Sons, New York. |
| | 09-01-2026 | 2 | Free Satellite Data Download Techniques (Landsat and LISS sensors: selection, metadata understanding, and downloading) | |
| | 16-01-2026 | 2 | Fundamentals of Image Interpretation (True Color Composite (TCC), False Color Composite (FCC), and interpretation logic) | |
| | 23-01-2026 | 2 | Elements of Image Interpretation (Tone, texture, pattern, shape, size, shadow, site, and association) | |
| | 30-01-2026 | 2 | Pre-Processing and Image Exploration Techniques (Color combinations, layer stacking, and band separation) | |
| February | 06-02-2026 | 2 | Image Extraction and Area of Interest (AOI) Delineation | |
| | 13-02-2026 | 2 | Spectral Information in Satellite Images (Spectral bands, reflectance characteristics, and data visualization) | |
| | 20-02-2026 | 2 | Spectral Signature Curves and Feature Discrimination | |

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| | 27-02-2026 | 2 | Digital Image Enhancement Techniques (Contrast stretching, filtering, band ratios) | |
| March | 06-03-2026 | 2 | Image Corrections in Digital Image Processing (Geometric and atmospheric corrections) | |
| | 13-03-2026 | 2 | Land Use and Land Cover Classification Techniques (Supervised and unsupervised classification methods) | |
| | 20-03-2026 | 2 | LULC Mapping, Change Detection, and Accuracy Assessment | |
| | 27-03-2026 | 2 | Advanced Applications of Remote Sensing (Morphometric analysis, urban sprawl analysis, indices—NDBI, SAVI, MNDWI, IDBI) | |