

Practical Plan		
Name of the college: Name of the college: Government College of Arts, science and Commerce Sanquelim Goa		
Name of Faculty: Dr. Arati Panshekar	Subject: Geography	
Paper code and title: GOG-305 Fundamentals of Geographical Information System	Program: TYBA	Division: Batch 1
Academic year: 2025 - 2026	Semester: VI	Total Practicals/Labs: 15
Credits: 1		
Course Objectives: This course provides an introduction to the fundamental concepts and applications of Geographical Information Systems (GIS). Students will learn the principles of spatial data, GIS technology, data analysis, and cartographic representation. Through a combination of lectures, hands-on exercises, and projects, students will develop practical skills in utilizing GIS tools for spatial analysis and decision-making.		
Expected Course Outcome: At the end of the successful completion of this course, students will be able to: 1. Understand the primary objectives of GIS in terms of spatial data management, analysis, and visualization. 2. Apply knowledge of spatial and non-spatial data models to solve real-world problems in various domains. 3. Integrate knowledge of coordinate systems and map projections to ensure accurate and meaningful spatial analysis. 4. Identify the methods of map creation and Create map using different elements of map making		

<p>Student Learning Outcome: After completing this course, students will be able to:</p> <p>Define GIS and explain its evolution, components, and objectives.</p> <p>Differentiate spatial and non-spatial data and explain raster, vector, and database data models.</p> <p>Understand coordinate systems and map projections and their importance in GIS analysis.</p> <p>Use basic GIS software tools for data input, editing, and visualization.</p>				
Month	Practicals/Labs Scheduled Date	No. of Practicals/Labs planned	List of Experiments	Reference books
January	05-01-2026	1	Creating User Accounts and Data Download (DIVA-GIS and SOI Naksha portals: data access and download procedures)	<ol style="list-style-type: none"> 1. George Joseph: Fundamentals of Remote Sensing, Second Edition, Universities Press, Hyderabad 2. Jensen J. R.: Remote Sensing of the Environment: An Earth Resource Perspective, Pearson Education, Singapore. 3. Lillesand, Kiefer and Chipman: Remote sensing and Image Interpretation. 5 Ed. Wiley& sons. 4. Reddy Anji M.: Text Book of Remote Sensing and Geographical Information System, BS Publications, Hyderabad, AP 5. Rees, W. G.: Physical Principles of Remote Sensing, Second Edition, Cambridge University Press, UK. 6. Robinson A. H., Sale, R. D., Morrison, J. L., Muehrcke, P. C.: Elements of Cartography, John Wiley & Sons, New York.
	12-01-2026	1	Introduction to QGIS Interface and Workspace (Exploring menus, toolbars, panels, and project settings)	
	19-01-2026	1	Understanding and Managing QGIS Plugins (Installing, enabling, and using essential plugins)	
	26-01-2026	1	Importing Raster Data into QGIS (Supported formats and layer management) Raster Georeferencing Techniques (Geographic and Projected Coordinate Systems)	
February	02-02-2026	1	Creation of Vector Datasets (Point, line, polygon layers and database formats)	
	09-02-2026	1	Basic Digitization Techniques (On-screen digitization and feature creation)	

	16-02-2026	1	Error Identification in Vector Data (Common digitization errors and detection methods)	
	23-02-2026	1	Topology Building and Error Correction (Snapping, topology rules, and corrections)	
March	02-03-2026	1	Symbology and Thematic Mapping (Simple features, categorized and graduated symbols)	
	09-03-2026	1	Geoprocessing Operations in QGIS (Split, merge, dissolve, clip, and intersect tools)	
	16-03-2026	1	Attribute Data Handling and Queries (Table management, selection, and basic SQL queries)	
	23-03-2026	1	Field Calculations and Map Layout Preparation (Field calculator, title, legend, scale bar, north arrow, and grids)	
	30-03-2026	1	Creating User Accounts and Data Download (DIVA-GIS and SOI Naksha portals: data access and download procedures)	