

Practical Plan		
Name of the college: Government college of Arts, Science and Commerce, Sanquelim Goa		
Name of Faculty: Dr. Arati Panshekar	Subject: Economics	
Paper code: ECO-6401 Techniques of Geo-spatial Analysis	Program: MA	Division: A
Academic year: 2026 - 2027	Semester: III	Total Practicals/Labs: 60
Course Objectives: To provide students a comprehensive understanding of India’s economic development in recent years and to familiarize them with the growth, development, and contribution of various sectors to the Indian economy.		
Expected Course Outcome: CO1. Recall major phases and reforms in India’s post-independence economy. CO2. Analyze trends and policies in agriculture, industry, and services. CO3. Evaluate India’s trade structure and balance of payments. CO4. Assess debates on poverty, employment, inequality, and sustainability. CO5. Apply economic data to interpret India’s development outcomes		
Student Learning Outcome: Upon successful completion of this practical course, students will be able to: 1. Create and manage spatial datasets by interacting with vector and raster data, creating shapefiles, editing attributes, applying topology rules, and managing coordinate reference systems. 2. Apply geospatial analysis techniques, including buffering, clipping, terrain analysis, interpolation, raster–vector integration, and zonal statistics using GIS software. 3. Visualize and interpret spatial information by styling raster and vector layers, creating thematic and 3D maps, and designing professional map layouts. 4. Perform advanced raster and vector analyses to solve geographical problems and effectively communicate spatial information through GIS-based outputs.		

Month	Practicals/Labs Scheduled Date	No. of Practical/Labs planned	List of Experiments		Reference books
June	26/06/2026 & 27/06/2026	4	Interacting with Spatial Data: Identifying Features, Measuring Distance and Area, and Selecting Features		1. Gatrell, J. D., & Jensen, R. R. (2009). Planning and socioeconomic applications (Geotechnologies and the environment). Springer Science & Business Media. 2. Huisman, O., & de By, R. A. (Eds.). (2009). Principles of geographic information systems: An introductory textbook. International Institute for Geo-Information Science and Earth Observation. 3. Menke, K., Smith, R., Luigi, P., & Tatsudo, H. (2016). Mastering QGIS. Packt Publishing. 4. Pogodzinski, J. M., & Kos, R. M. (2013). Economic development & GIS. Esri Press. 5. Sherman, G. E. (2008). Desktop GIS: Mapping the planet with open-source tools. Pragmatic Bookshelf. 6. Westra, E. (2014). Building mapping applications with QGIS: Create your own sophisticated applications to
June	03/07/2026 & 04/07/2026	4	Creating and Editing Shapefiles (Point, Line, and Polygon)		
July	10/07/2026 & 11/07/2026	4	Snapping and Topology: Creating Error-Free Vector Data		
July	17/07/2026 & 18/07/2026	4	Working with Attribute Tables and Field Calculator		
July	24/07/2026 & 25/07/2026	4	Data Joins and Table Relationships		
August	31/07/2026 & 01/08/2026	4	Coordinate Reference Systems (CRS), Map Projections, and Reprojection of Spatial Data		
August	07/08/2026 & 08/08/2026	4	Geoprocessing Operations: Clipping and Extracting Spatial Data		
August	14/08/2026 & 15/08/2026	4	Terrain Analysis: Digital Elevation Model (DEM), Slope, Aspect, and Hillshade		
August	21/08/2026 & 22/08/2026	4	Spatial Interpolation Techniques		
September	28/08/2026 & 29/08/2026	4	Buffer Analysis for Point, Line, and Polygon Features		
September	04/09/2026 & 05/09/2026	4	Styling Raster Layers: Terrain, Satellite Images, and Land Cover Maps		
September	11/09/2026 & 12/09/2026	4	Styling and Labelling Vector Layers: Point, Line, and Polygon Features		
September	18/09/2026 & 19/09/2026	4	Creating 3D Maps and Exploring 3D Map Views		
September	25/09/2026 & 26/09/2026	4	Print Layout Design and Professional Map Composition		
October	02/10/2026 & 03/10/2026	4	Raster–Vector Integration: Raster-to-Vector, Vector-to-Raster Conversion, and Zonal Statistics		
October	09/10/2026 & 10/10/2026	4	Advanced Raster and Vector Spatial Analysis		

*** Assessment Rubrics**

Component	Max Marks
Practical	25