Programme: M.A. Economics

Course Code: ECO 0130

Title of the Course: Techniques of Geo-spatial Analysis

Number of Credits: 4 Total Contact Hours: 48

Effective from AY: 2021-22

Prerequisites for the Course:	The basic knowledge of Mathematics and Statistics	
Objective:	To introduce the students the technique of spatial data analysis and its applications in Economics	
Content:	Module 1: Use of spatial data in economic analysis- Introduction to QGIS - installing QGIS and its graphical user interface.	6 hours
	Module 2: Data Creation and editing formats Data formats- Interacting with data -inspecting, measuring and selecting data, Vector Data- attribute data, projections, creating shapefile, snapping, topology and data joins, Raster Data.	14 hours
	Module 3: Creating map and styling Styling raster layers- terrain, satellite images and landcover map, styling vector layers- simple maker, point line and polygon style- labeling - map creation- print layout.	14 hours
	Module 4:Spatial Analysis Analysing raster data- clipping, analysing elevation, terrain projections and raster calculator, Combining raster and vector data-converting between raster and vector and zonal statistics, Advanced raster and vector analysis with processing.	14 hours
Pedagogy:	Lectures/ tutorials/assignments/group activity	1
Reference/	=	4

Readings:	1. Andrew Cutts, Anita Graser(2018), Learn QGIS,	
Main reference	Your Step-by-step Guide to the Fundamental of QGIS 3.4, Packt Publishing,4th Edition, Livery Place, UK.	
	2. Quantum Geographic Information System (QGIS) training manual https://docs.qgis.org/3.10/en/docs/training_manual/index.html	
Additional Reference	3. Gary E. Sherman(2008), Desktop GIS mapping the planet with open source tools, Pragmatic Bookshelf, Raleigh, North Carolina Dallas, Texas.	
	4. Otto Huisman, Rolf A. de (2009), Principles of geographic information systems: an introductory textbook, The International Institute for Geo-Information Science and Earth Observation (ITC), Netherlands.	
	5. Kurt Menke et.al (2016), Mastering QGIS, Packt Publishing, Livery Place, UK.	
	6. Erik Westra (2014), Building Mapping Applications with QGIS Create Your Own Sophisticated Applications to Analyze and Display Geospatial Information Using QGIS and Python, Packt Publishing,4th Edition, Livery Place, UK.	
	7. Jay D. Gatrell, Ryan R. Jensen (2009), Planning and Socioeconomic Applications (Geotechnologies and the Environment), Springer Science & Business Media.	
	8. J. M. Pogodzinski, Richard M. Kos(2013), Economic Development & GIS, Esri Press.	
Learning Outcomes:	This course will enable the candidates to use spatial data for economic analysis. Candidates will be able to extract and process spatial images using open-source software for economic decision-making.	