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Name of the Programme: M.A. in Economics

Course Code: ECO 602 Title of the Course: Techniques of Geo-spatial analysis

Number of Credits: 4

Effective from AY: 2022-23

Prerequisites for the Course:	Basic knowledge of mathematics and statistics as per core requirements in MA Economics	
Objective:	Understand the use of spatial data and its applications in economics	**Contact Hours per module**
Content:	**Module 1:** Use of spatial data in economic analysis- Introduction to QGIS - its graphical user interface. Fundamentals of Remote Sensing Signals, Electromagnetic Spectrum, Terms and Units of Measurement, Electromagnetic Radiation Laws, Resolution of a Sensor System,-Spatial, Spectral, Radiometric, Temporal and Angular resolution, sources of information remote sensing data **Module 2:** Raster and Vector Data formats- Interacting with data - identifying features, measuring and selecting data, creating shapefile, snapping, topology, attribute table and filed calculator, data joins, projections, clipping, analyzing elevation, terrain **Module 3:** Interpolation, buffer, Styling layers- raster, terrain, satellite images and landcover map, styling and labeling vector layers-point, line and polygon style, creating 3D map, print layout-map creation, 3D map view. **Module 4:** Analyzing raster data- raster calculator, Combining raster and vector data-converting between raster and vector and zonal statistics, Advanced raster and vector analysis with	15 hours 15 hours 15 hours 15 hours

	processing-Finding nearest neighbors, Converting between points, lines, and polygons, Calculating area shares within a region, regression, Reclassify raster layer.	
Pedagogy:	● Chalk and talk aided by ICT enabled lectures ● PC lab exercises ● Assignments and presentations ● Group activity ● MOOC (or similar) Component	
Reference/ Readings:	**Core reading** C1. Andrew Cutts, Anita Graser(2018), Learn QGIS, Your Step-by-step Guide to the Fundamental of QGIS 3.4, Packt Publishing,4th Edition, Livery Place, UK. C2. Emilio Chuvieco (2016),Fundamentals of Satellite Remote Sensing An Environmental Approach,CRC Press Taylor & Francis Group C3. Quantum Geographic Information System (QGIS) training manual https://docs.qgis.org/3.10/en/docs/training_manual/index.html **Additional References** A1. Gary E. Sherman(2008), Desktop GIS mapping the planet with open source tools, Pragmatic Bookshelf, Raleigh, North	

	Carolina Dallas, Texas. A2. 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. A3. Kurt Menke et.al (2016), Mastering QGIS, Packt Publishing, Livery Place, UK. A4. 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. A5. Jay D. Gatrell, Ryan R. Jensen (2009), Planning and Socioeconomic Applications(Geotechnologies and the Environment), Springer Science & Business Media. A6. J. M. Pogodzinski, Richard M. Kos(2013), Economic Development & GIS, Esri Press.	
Learning Outcomes:	Candidates will be able to a) extract and process spatial images b) use open source GIS software c) Understand ow to translate LULC information for economic decision-making.	

GOA UNIVERITY					
Exam	November 2023 Examination (Master of Arts in Environmental Science - MAEVS)				
College	School of Earth, Ocean & Atmospheric Sciences				
Programme	Master of Arts in Environmental Science				
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Paper	ECO-602	Techniques of Geo-spatial analysis			
Paper Head	ISA	Max Marks	60	Credits	4

Seat No	Student Name	ISA Marks
22P0570003	TIKU RUCHIKA TEJKISHEN	58

Certified that all the sub components have been taken into account while finalising the above marks.

Ms. Heena Gaude
NAME OF EXAMINER

15/11/23
EXAMINERS'S SIGNATURE
For Heena Gaude

15/11/23
~~Dean~~/Programme Director/ ~~Principal's~~ Signature
I/C
Date: 15/11/23

N.B.NOTE : Department/College may,kindly confirm that the above details are correct with reference to paper title, paper code and number of credits.

<< Absentees should be marked as 'A' (without quotes) >>
<< Carry forward of marks should be indicated as 'CF' (without quotes) >>

16.11.2023

GOA UNIVERSITY
GOA BUSINESS SCHOOL
M.A. Economics, Part II, Semester -III
Time Table 2023-24 (Tentative)
(effective from 16/6/2023)

	9.30 - 11.30	11.30 - 1.30	2.30-4:30
MONDAY	**ECO-622 Health Economics (AK)**	**ECO-623 Introduction to Finance (SD)**	**Evolution of Economic Thought (AK)**
TUESDAY	**ECO-601 Data Sources for the Indian Economy (BPS+PM)**	**ECO-602 Techniques of geo-spatial (HG)**	**ECO-621 Indian Agriculture (AA)**
WEDNESDAY	**ECO-600 Research Methodology in Economics (SD)**	**Evolution of Economic Thought (AK)**	**ECO-623 Introduction to Finance (SD)**
THURSDAY	**ECO-601 Data Sources for the Indian Economy (BPS+PM)**	**ECO-602 Techniques of geo-spatial (HG)**	**ECO-621 Indian Agriculture (AA)**
FRIDAY	**ECO-600 Research Methodology in Economics (SD)**	**ECO-622 Health Economics (AK)**	**ECO-651 Dissertation**
SATURDAY	**ECO-602 Techniques of geo-spatial (HG)**	**Evolution of Economic Thought (AK)**	

Faculty

ECO-600 Research Methodology in Economics	Sumita Datta
ECO-601 Data Sources for the Indian Economy	Prof. Sarath &Prof.Pranab
ECO-621 Indian Agriculture	Aditya Amonkar
ECO-622 Health Economics	Avina Kavthankar
ECO-623 Introduction to Finance	Sumita Datta
ECO-602 Techniques of geo-spatial	Heena Gaude

Goa University ★ Goa Business School ★

PD Economics

Economics Discipline
Goa Business School
Goa University

Course : ECO-602 Techniques of geo-spatial
Student Name: Ruchika Tiku

	June, July		August		September		October		Overall		
	Total Number of Lectures conducted	No. of Lectures attended	Total Number of Lectures conducted	No. of Lectures attended	Total Number of Lectures conducted	No. of Lectures attended	Total Number of Lectures conducted	No. of Lectures attended	Total	Total number of lectures attended	percentage
Ruchika Tiku	13	13	14	12	16	10	16	14	59	47	79.66

Goa Business School * Goa University *

23/10/2023

Heena Gauns
Course Instructor
PD Economics GBS
I

PD. & M.Sc Environment Science.