

# Department of Geography Vidyasagar University, Medinipur West Medinipur 721102

### Syllabus for Ph.D. coursework programme

## Department of Geography Vidyasagar University

Course Name	Course	Course Name	Lecture
	No		(Hours)
Ph.D.	101	Research Methodology	10
coursework	102	Advance Statistics and Geo-spatial	10
programme		Techniques	
	103	Advance Learning of Earth system	10
		Sciences	
	104	Concept and Techniques in Social	10
		Sciences	

#### Course No-101: Research Methodology:

- 1. Introduction to Research: Types, Objectives and Methods
- 2. Review of literature and bibliography
- 3. Research Design
- 4. Research report, Citation and Referencing
- 5. Assignment Writing

#### Course No-102: Advance Statistics for Geo-spatial Analysis

- 1. Concept of variables, vectors, probability and sampling / sampling design and applications
- 2. Hypotheses and their testing.
- 3. Bivariate correlation and linear regression: problem of estimation and problem of inferences.
- 4. Principal component analysis.
- 5. Multiple linear regression: problem of estimation and inferences. Multicollinearity and heteroscadascity, problem of autocorrelation, Model Selection procedure: information criterion, variable inflation factor.
- 6. Bivariate nonlinear regression: problem of estimation and inferences, Logistic regression
- 7. Path modelling, Regression tree
- 8. Concept of autocorrelation and variogram, techniques and methods of interpolation, role of interpolation for surface modeling.
- 9. Time series analysis: linier trend analysis, MK Test, Sen's slope estimation
- 10. Geospatial Techniques: applications of RS & GIS in Geoscience research
- 11. Instigation and analysis of spatial and non-spatial data using RS & GIS techniques: spatial data generation using various types of aerospace data; merging of image data with ancillary data; real world cases studies link to competency based domains and problem base learning (e.g. Urban, LULC, Geomorphology, Geology etc.)
- 12. Assignment Writing

#### **Course No-103: Advance Learning of Earth system Sciences**

- 1. Geological time scale, Dating techniques; Fundamental concepts, Geomorphic agents, Drainage patterns, Soils, Classification of Landforms, Inage characteristics of major Landforms.
- 2. Quaternary Geology and applied Geomorphology
- 3. Remote sensing techniques in quaternary geological and applied geomorphological mapping: Hyperspectral, Thermal, Micro wave Concept and applications
- 4. GNSS (viz. GPS, GLONASS, GALLELIO and Indian Navigation System) Application in Geological / Geomorphological and Societal survey
- 5. Concept and application of Geosciences in Natural Hazards and Disaster Management.

### **Course No-104: Concept and Techniques in Social Sciences**

- 1. Economic and Environmental issues related to Tourism and Travel Management.
- 2. Research Design under Realism and Structuralism.
- 3. Social Indicators of Development with Special Reference to Health and Education
- 4. Gender and Development: Regional Dimensions with Special Reference to India
- 5. Environmental hazard and mitigation strategies
- 6. The ecology of cities: Approaches to sustainability and management
- 7. Human dynamics: social–ecological–technical/built system (SETS) interaction.