Department of Geography
Vidyasagar University, Medinipur
West Medinipur 721102

Syllabus for Ph.D. coursework programme

Department of Geography
Vidyasagar University

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

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

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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.

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