SYLLABUS
OF
Ph.D. COURSE WORK
2014

GEOGRAPHY AND DISASTER MANAGEMENT

TRIPURA UNIVERSITY

(A CENTRAL UNIVERSITY)

SURYAMANINAGAR, WEST TRIPURA

TRIPURA– 799022

Course Structure

There are 4 (four) papers in the Ph.D. Course Work Curriculum. Each paper carries 100 marks. For Paper III and IV candidates will have to opt for any one Special Paper according to their choice.

Paper	Title	Marks
I	Research Methodology	100
II	(A) Hydrology, Geomorphology and Regional Planning	100
III	Special Paper on any of the following topic: (1) Fluvial Geomorphology (2) Regional Planning and Development	100
IV	(A) Practical on Special Paper (B) Presentation of Literature Review on a Research Problem	50 50

PAPER – I

RESEARCH METHODOLOGY

Full Marks – 100

UNIT – 1: Types and Methods of Research (25 Marks)

- Nature and basis of research: Types of research; Geographic Method and its relation to Scientific Regional Spatio- temporal Ecological system analysis and Environmental Approaches.
- Research Design: Meaning, Need, Features of research designs; Different research designs, Problem identification, Objectives/Hypothesis and Sampling design.
- Writing Research Report: Significance, Steps and Methods, Reference citing and Footnoting; Formatting and Precaution in writing a Report.

UNIT – II: Application of Statistical Techniques in Geography (25 Marks)

- Methods of Data Collection: Schedule, Analogue and Questionnaire, Interview, Instrumental Survey and Digital Modes.
- Hypothesis: Meaning, Procedure, Forms, Parametric and Non-parametric Testing of Hypothesis.
- Multiple Regression Analysis, Principal Component Analysis and Factor analysis.

UNIT – III: Application of Quantitative Techniques in Geography (25 Marks)

- Mean Centre.
- Population Projection.
- Nearest Neighbour Analysis.
- Residual Mapping.
- Time series Analysis.

UNIT – IV: Computer Application in Geography (25 Marks)

- Scope of Digital Cartography in Geography, Basic principles and Components of Computer assisted mapping.
- Domain of Geo-spatial information and translation of characteristic of digital environment, Map use and Map design.
- Operational Methodology – Scanning, Digitizing, Editing and Structuring of map data, Geo-referencing of Scanned Maps and Images.

PAPER – II

HYDROLOGY, GEOMORPHOLOGY AND REGIONAL PLANNING & DEVELOPMENT

Full Marks – 100

UNIT – 1: Hydrology and Geomorphology (50 Marks)

- Hydrology: Definition and Scope, Basic Concept of Hydrology, Concept of Hydrological Cycle, Hydrological Budget, Components of Run-off, Factors affecting Run-off, Rainfall-Runoff Relationship and River Regime.
- River Geomorphology: Form– Process relationship in Humid Climatic Region, Analysis of different Drainage Pattern and Channel Pattern Development, Concept of Davisian Cycle of erosion and its alternative models, Interruptions in the Normal Cycle of Erosion.

UNIT – II: Regional Planning and Development (50 Marks)

- Regional Planning: Concept of Region and Regionalization, Basic Concepts of Regional Planning, Locational Theory: Weber, Losch, Christraller and its Application.
- Planning and Development: Concept of Planning and Development, Regional Development Strategies, Concept and Strategies of Agricultural Development, Concept and Strategies of Industrial Development, Concept and Strategies of Rural Development, Concept and Strategies of Urban Development, Concept and Strategies of Tourism Development.

PAPER – III

FLUVIAL GEOMORPHOLOGY

(Special Paper)

Full Marks – 100

UNIT – I: Geomorphic and Hydrologic Analyses of Drainage Basin (50 Marks)

- Drainage Basin as a unit of geomorphic study.
- The morphometric analyses of drainage basin.
- The measures of magnitude of drainage basin.
- Measures of relief and linear properties.
- Hydrological Cycle of Drainage Basin.
- Run off Cycle.
- Major determinants of the hydrological characteristics of the catchments.
- Analysis of stream flow conditions.
- Long-term and Short-term channel changes.

UNIT – II: Remote Sensing Application (50 Marks)

- Remote Sensing application in the field of agriculture – Land Use / Land Cover; Soil Mapping; Crop Inventory; Crop acreage estimation; Crop yield forecasting.
- Remote Sensing application in the field of hydrology – Approach and methodology for ground water exploration; Hydro-geomorphological mapping, Soil moisture; Run off.
- Application of Remote Sensing in the field of Geology and Forest.
- Change detection techniques -- Image differences; Ratio image differences; Principle component.

PAPER– III

REGIONAL PLANNING AND DEVELOPMENT

(Special Paper)

Full Marks – 100

UNIT – I: Concept of Planning and Development (50 Marks)

- Concept and Classification of Region and Regionalization.
- Basic Principle of Regional Planning.
- Definition, Concept and Classification of Land use.
- Concept and Classification of Urban and Rural settlement.
- Concept of regional development, indicators for measurement of Regional Development.
- Relationship between developmental approach and philosophical approach.

UNIT – II: Strategies for Development in India (50 Marks)

- Physical Region, Economic Region, Cultural Region, Planning Regions of India.
- Regional Disparities in economic development and human development in India.
- Strategies for Rural Development Planning in India: Special references to West Bengal, Kerala and Tripura.
- Concept and Strategies of Industrial Development of India.
- Concept, Classification and Strategies of Urban Planning and Development Policies in India.
- Tourism Industry in India, Eco-Tourism, Development Strategies of Tourism in India and Tripura.
- Application of Remote Sensing in the field of different types of Landuse and Planning.

PAPER – IV

FLUVIAL GEOMORPHOLOGY

(Special Paper)

Full Marks – 100

GROUP – A (Practical) **(50 Marks)**

- Georeferencing and Mosaicing of SOI Topographical Maps.
- Delineation of drainage basin.
- Selection of attributes, Supervised Classification of Land Use and Measurement of area.
- Identification and Mapping of Drainage Patterns.
- Digitization and Overlaying of channels of different periods.
- Time Series Analysis.
- Calculation of Sinuosity Index.
- Drawing and Interpretation of Rating Curve and Hydrograph.

GROUP – B **(50 Marks)**

- **Power Point Presentation of Literature Review on a Research Problem.**

PAPER – IV

REGIONAL PLANNING AND DEVELOPMENT

(Special Paper)

Full Marks – 100

GROUP – A (Practical) **(50 Marks)**

- Measurement of Inequality.
- Measurement of Concentration.
- Measurement of Transport Accessibility.
- Spatial Analysis of Geographical Data.
- Time Series Analysis.
- Human Development Index: Social Development Index.
- Geo-referencing and Mosaicing the Maps.
- Drawing and Analyse of Thematic Maps.

GROUP – B **(50 Marks)**

- **Power Point Presentation of Literature Review on a Research Problem.**