

**DEPARTMENT OF GEOGRAPHY**  
**MPHIL/PHD COURSEWORK SYLLABUS**

**Semester I**

Course	Title of Course	Credit	Core/Open
GEO-RS-C101	Research Methodology	4	Core
GEO-RS-C102	Quantitative Methods in Geography	4	Core
GEO-RS-O103	Glacio-Fluvial Processes in Geomorphology	4	Open
GEO-RS-O104	Water Resource Management in the Himalayas	4	Open
GEO-RS-O105	Political Economy of Regional Development with reference to India	4	Open

**GEO-RS-C101: Research Methodology**

**Unit I: Scientific research**

Research: relevance of conceptual framework in research, identification of research problems, objective, hypothesis, research questions, model building in Geography, Paradigm and paradigm shifts in research

**Unit II: Typology of research methods**

Epistemology, Descriptive research, exploratory research, explanatory research and research on causality, comparative research, hypothesis testing research, survey research, cross-sectional research, longitudinal research, experimental and quasi-experimental research, evaluation research, case study, pilot study, field research, collaborative approaches, behavioural research, mixed methods

**Unit III: Research and Scientific Analysis**

Data source, Sampling, Identification of variables, transformation of variable into indicators, literature survey and referencing (citation, footnotes, bibliography), questionnaire preparation, use of tables and illustrations, Writing Dissertation; research ethics and Plagiarism.

**Unit IV: Methods and Explanation.**

Spatial, temporal, dynamic and socio-economic models and explanations

## **References:**

1. Blalock, H. M.: Social Statistics, (McGraw-Hill Series in Sociology), 1979.
2. Chorley, R.J. and Heggett, P.: Models in Geography, Methuen, London, 1973.
3. David Ebdon: Statistics in Geography, Blackwell Publishers, 1991.
4. Goon Gupta and M.K. Gupta: Fundamental of Statistics, the World Press. And also McGraw Hills Book Company, Delhi, 1991.
5. Mehmood, Aslam: Quantitative Methods in Geography, New Delhi: Rajesh Publications, (Revised edition).1998.
6. Monkhouse, F.J.: Maps and Diagrams, Methuen, London, 1971.
7. Pal, Saroj: Statistics for Geoscientists: Techniques and Applications, New Delhi: Concept, 1998.
8. Yule, G. U. & Kendal, M.G.: An introduction to the Theory of Statistics, 14th Ed, Charles-Griffin, London.(Additional reading in advance Quantitative course)

## **GEO-RS-C102: Quantitative Methods in Geography**

### **Unit I: Concepts of Probability**

Uniform, normal, binomial and poison

### **Unit II: Theory and types of Sampling**

Distribution, Concept of Standard errors, Type I & II errors, Test of Significance (Parametric z, t and f distribution).

### **Unit III: Non Parameteric Test**

Chi Square, Kolmogorov Smrinov, Mann-Whitney

### **Unit IV: Correlation and Association in Statistics**

Bi-Variate and introduction to multivariate analysis, Data distribution and residuals from regression, Logistic regression

## **References:**

1. David Ebdon: Statistics in Geography, Blackwell Publishers, 1991.
2. Pal, Saroj: Statistics for Geoscientists: Techniques and Applications, New Delhi: Concept, 1998.
3. Yule, G. U. & Kendal, M.G.: An introduction to the Theory of Statistics, 14th Ed, Charles-Griffin, London

## **GEO-RS-O103: Glacio-Fluvial Processes in Geomorphology**

### **Unit I : Processes and Typology**

Processes in Geomorphology: Aeolian, fluvial and glacio-Typology fluvial landforms.

## **Unit II: Glacial-landform**

Glacial Geomorphology, Glacial, Peri glacial and supra-glacial processes and landforms with Reference to Himalaya.

## **Unit-III: Fluvial geomorphology**

Fluvial processes, Glacio-fluvial hazards and landslides (GLOF and Avalanches), Types of drainage basins and associated land forms with reference to Sikkim

## **Unit-IV Morphometric techniques**

Morphometric techniques in Geomorphology and measurements of geomorphic features: slopes, sediment load and textures, size and shape of Glaciers and river basin. Local case studies

## **References**

1. Hubbard, Bryn and Neil F. Glasser Field techniques in glaciology and glacial geomorphology, Wiley, 2005.
2. Hugget, Richard, J.: Fundamentals of Geomorphology, Routledge (UK), 2003
3. Leopold Luna B. Wolman and John; Fluvial Processes in Geomorphology, Dover Publication, INC, New York. 1995
4. Tim Davie: Fundamentals of Hydrology, Routledge, 2002.

## **GEO-RS-O104: Water Resource Management in the Himalayas**

### **Unit I: Typology of Resources**

Typology of resources, Water as Resource,, Renewable non-renewable and cyclic resource. Critical issues related to Water resources North-East India: Flood, drought, Glacial melt.

### **Unit II: River basin Hydrology**

Elements of Hydrological cycle- Nature and type of precipitation run off and water reserves, glaciers, lakes, springs.

### **Unit III: Inventory and mobilisation of water resources**

Traditional methods of water use and managements;- models, techniques;-Modern methods of water Resource management: Dams etc and mitigation of Hydrological hazards:- Floods and other hazards.

### **Unit IV Sustainability and Geopolitics of Water Resources**

Geopolitics related to N-E India and water resources Management. Water resources and Sustainable Development, Watershed management.

## **References**

1. Jain, Sharad K., Pushpendra K. Agarwal and Vijay P. Singh: Hydrology and Water Resources of India, Springer, 2005.
2. Thomas V. Cech Principles of Water Resources: History, Development, Management, and Policy, John Wiley & Sons, 2005.

3. Vidyanathan, A. Water Resources of India, Oxford University Press, New Delhi, 2013
4. Wood, John R. The Politics of Water Resource Development in India. Sage Publications, Los Angeles, 2007.

### **GEO-RS-O105:**

#### **Political Economy of Regional Development with reference to India**

##### **Unit I: Concepts and Models**

Concept of Development: Growth, Regional Development, Sustainable development: Schools of thought on Regional Development: Myrdal, Hirschman, Friedman, Diversion Conversion Hypothesis, Stage Theory of Regional Development, World System Approach.

##### **Unit II: Development of Under Development**

Evolution of Colonial Regional Structure and Core-Periphery, Metropolitan-Satellite Growth Pole and related concepts, and Enclave Model of Regional Development.

##### **Unit III: Political Economy of Regional Development in India**

Pre-Colonial and Colonial Regional Structure, Regional Structure under mercantilism, Industrialism and Imperialism.

##### **Unit IV: Regional Development in Post-independent India**

Pre-Green Revolution, Green Revolution period and Regional Development under globalisation with Development corridors with special reference to SEZ, Development Policies and Inclusive Measures.

##### **Essential Readings:**

- Ahmad, Aijazuddin 2009, *Geography of the South Asian Subcontinent: A Critical Approach*, Concept Publishing Company, New Delhi.
- Bingham, Richard D. and Mier, Robert (Ed.) 1993, *Theories of Local Economic Development: Perspective From Across the Disciplines*, Sage Publications.
- Habib, Irfan 2008, *Indian Economy 1858-1914 (A People's History of India)*, Tulika Books.
- Hartshorne, Truman A. and Alexander, John W. 2012, *Economic Geography (Third Edition)*, PHI Learning Private Limited, New Delhi.
- Kundu, A. and Raza, M 1982, *Indian Economy-The Regional Dimension*, Spectrum Publications, New Delhi.
- Peet, Richard and Hartwick, Elaine 2010, *Theories of Development: Contentions, Argument and Alternatives (Second Edition)*, Rawat Publications.
- Pieterse, Jan Nederveen 2010, *Development Theory: Deconstructions and Reconstruction (Second Edition)*, Sage Publications.
- Raza, Moonis (Ed.) 1988, *Regional Development, Contribution to Indian Geography (10)*, Heritage Publishers, New Delhi.