# COOCH BEHAR PANCHANAN BARMA UNIVERSITY

Panchanan Nagar, Vivekananda Street, Cooch Behar – 736101

## DEPARTMENT OF GEOGRAPHY

# M.Sc. IN GEOGRAPHY

POSTGRADUATE PROGRAMME

## DETAILED SYLLABUS

## SEMESTER I

## Programme Code: PGGEO1

**Session: 2026-2027**

09/9/2026

# M.Sc. IN GEOGRAPHY (POSTGRADUATE PROGRAMME)

## SEMESTER I COURSE STRUCTURE

*Each course carries 5 credits: Theory 3, Practical 1 and Continuous Evaluation (CE) 1.*

| Course | Paper Codes | Title of Paper | Theory Marks | Practical Marks | CE Marks | Attendance | Total Marks / Credit |
|---|---|---|---|---|---|---|---|
| **DSC-101** | DSC-101T<br>DSC-101P | Geographical Thought | 50 | 25 | 20 | 5 | 100 / 5 |
| **DSC-102** | DSC-102T<br>DSC-102P | Advanced Geomorphology & Hydrology | 50 | 25 | 20 | 5 | 100 / 5 |
| **DSC-103** | DSC-103T<br>DSC-103P | Advanced Climatology | 50 | 25 | 20 | 5 | 100 / 5 |
| **DSE-104A** | DSE-104A T<br>DSE-104A P | Health Geography | 50 | 25 | 20 | 5 | 100 / 5 |
| **DSE-104B** | DSE-104B T<br>DSE-104B P | Geography of Tourism and Hospitality Management | 50 | 25 | 20 | 5 | 100 / 5 |

**Elective requirement:** Students shall select either DEC-104A or DEC-104B as the elective theory–practical pair.

**Semester credit total:** 20 credits comprising three DSC courses and one elective course (DSE).

**Abbreviations:** DSC – Discipline-Specific Core; DSE – Discipline-Specific Elective; CE – Continuous Evaluation.

**Course: 101** **Semester- I**

**Paper Name: Geographical Thought**

Programme Code: PGGEO1

Paper Code: DSC-101T

Full Marks-50 Time-2:30 hrs

## Course Objectives

The course aims to:

1. Trace the evolution of geographical thought from classical to contemporary periods.
2. Examine major schools, concepts, debates and scholars in geography.
3. Explain the philosophical and methodological transformations within the discipline.
4. Develop a critical understanding of geographical knowledge, including Indian Knowledge Systems.

## Course Outcomes

After completing the course, students will be able to:

1. Explain the development of geographical thought from ancient to contemporary times.
2. Compare determinism, possibilism, neo-determinism and other major geographical perspectives.
3. Evaluate the contributions of prominent geographers and thinkers to the discipline.
4. Distinguish between regional and systematic, nomothetic and idiographic, and positivist and humanistic approaches.
5. Critically interpret contemporary perspectives and Thomas Kuhn's concept of paradigm shift in geography.

## Unit-I
## Classical Geographical Thought 25 Marks

### 1.1 Origin, Nature and Contribution of Classical Geographical Thought

Meaning and evolution of geographical thoughts; Geography in relation to philosophy, astronomy and cartography; Early concepts of the Earth, space, place and environment; Ancient Indian Knowledge System **[15 Hrs.]**

### 1.2 Age of Exploration and Early Modern Geography

Renaissance and the Revival of Geographical Knowledge; **Age of Exploration and Geographical Discoveries:** Contribution of Christopher Columbus, Vasco da Gama, Ferdinand Magellan and James Cook; Development of Cartography; **Early Modern Geographical Thought:** Copernicus, Galileo, Keplar, Varenius, Kant **[15 Hrs.]**

## Unit-II:
## Modern Geographical Thought Marks: 25

**2.1 Contributions of modern School of thoughts in Geography:** German, French, British and American;

**Dualism in Geography:** Systematic vs Regional Geography, Nomothetic vs. Ideographic approach.**[15 Hrs]**

**2.2** Geography as a Spatial Science; Positivism and Quantitative revolution; Systematic approach in Geography; Behavioural and Humanistic Geography; Radicalism and Marxist Geography; Feminist and Critical Geography; Postmodern and Post-structuralist Geography, Role of Laws, Theories, and Models in Geography,Thomas Kuhn's Concept of Paradigm Shift. **[15 Hrs]**

**CE-1: Preparation of Ancient Maps and Major Routes of Geographical Exploration — 10 Marks**
***CE2: Class test...10 Marks***

## Suggested Reading

1. Adhikari, S. (2015). Fundamentals of Geographical Thought. Orient Blackswan.
2. Couper, P. (2015). A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies. Sage.
3. Cresswell, T. (2013). Geographic Thought: A Critical Introduction. Wiley-Blackwell.
4. Dickinson, R.E. (2015). The Makers of Modern Geography. Routledge.
5. Dikshit, R.D. (2004). Geographical Thought: A Contextual History of Ideas. Prentice Hall India.
6. Geography. Routledge.
7. Holt-Jensen, A. (2018). Geography: History and Concepts: A Student's Guide (5th ed.). Sage.
8. Husain, M. (2015). Evolution of Geographical Thought (6th ed.). Rawat Publications.
9. Jeffrey, A., & Nayak, A. (2013). Geographical Thought: An Introduction to Ideas in Human
10. Lahiri Dutta, K. (2010). Bhugol Chintar Bikash [Bengali]. The World Press Pvt. Ltd, Kolkata:
11. Maiti, R., & Maiti, M. M. (2021). Development of Geographical Thought: Contextualization and Synthesis of Philosophies (2nd ed.). Nabodaya Publications.
12. Peet, P. (1998). Modern Geographical Thought. Wiley-Blackwell.

**Course: 101** **Semester- I**

## Paper Name: Geographical Thought

Programme Code: PGGEO1

Paper Code: DSC-101P

Full Marks-25 Time-2:00 hrs

### Course Objectives

- Understand the evolution, major traditions and schools of geographical thought.
- Critically examine important geographical concepts, approaches and paradigms.
- Develop academic writing, analytical and presentation skills.

### Course Outcomes

After completing the course, students will be able to:

- Explain the development and major traditions of geographical thought.
- Compare geographical schools, concepts and paradigms.
- Critically evaluate the contributions of prominent geographers.
- Prepare and present a well-structured academic term paper.

**Unit–I:**

**Term Paper** **Marks: 10**

Chronological development of Geographical Thoughts and contribution for the development of Geography/ Preparation of Mental Map of the given specific area. **[15 Hrs]**

**Unit–II:**

**Assignment-based Seminar** **Marks: (5+10)=10**

Preparation and delivery of a PowerPoint presentation based on the approved term-paper topic or another theme assigned by the course teacher. **[15 Hrs]**

*Note 1: The value in the square brackets indicates contact hours per semester*

*Note 2: 5 Marks for assignment and 10 Marks for presentation for UNIT-II*

Course: 102 Semester- I

# Paper Name: Advanced Geomorphology & Hydrology (Theoretical)

Programme Code: PGGEO1

Paper Code: DSC-102T

Full Marks-50 Time-2:30 hrs

## Course Objectives

- Develop an advanced understanding of geomorphic chronology, tectonic processes, hillslope evolution, periglacial environments and hydrological systems.
- Integrate geomorphic and hydrological concepts for the analysis of environmental hazards and watershed processes.
- Evaluate climate-resilient approaches to water-resource assessment and management.

## Course Outcomes

## After completing the course, the students are able to:

- Explain geochronological methods, tectonic processes and models of landscape evolution.
- Analyse hillslope, periglacial and applied environmental geomorphic processes and hazards.
- Evaluate watershed characteristics, runoff generation, flood processes and hydrograph behaviour.
- Assess water scarcity, drought mitigation, rainwater harvesting and climate-change impacts on water security.

## Unit–I:

## Advanced Geomorphology Marks: 25

### 1.1 Geochronology, Tectonic Processes and Landscape Evolution

Concept of dating: relative and absolute dating and their principles and techniques; Quaternary geomorphology in India: nature and classification of diastrophic forces; structural expressions and their integration into modern tectonic geomorphology; historical and modern slope-evolution models of Davis, Penck, Hack and King **[15 Hrs.]**

### 1.2 Hillslope, Periglacial and Environmental Geomorphology

Slope elements and forms; mass movements, their causative factors and classification; remedial and conservation measures; nature and environmental characteristics of Arctic and Subarctic regions; periglacial processes and evolution of periglacial landforms; mapping and prediction of susceptibility to landslides. **[15 Hrs.]**

## Unit–II:

## Hydrology Marks: 25

### 2.1 Watershed Hydrology, Runoff and Flood Analysis

Concept of watershed as a hydrological unit; morphometric characteristics of drainage basins; factors affecting runoff; overland flow and subsurface stormflow pathways; floods and peak-discharge estimation; flash floods, glacial lake outburst floods (GLOFs), fundamentals of channel and reservoir routing; streamflow measurement; components of a hydrograph and base flow of a river. **[15 Hrs.]**

### 2.2 Climate-Resilient Water Resources Assessment and Management

Water-scarcity indices; drought-mitigation planning; modern techniques and approaches to rainwater harvesting in India; impacts of global warming on snowmelt, glacier retreat, extreme precipitation events and regional water security. **[15 Hrs.]**

***CE 1: Assignment: Visit a nearby river and measure the stream flow by current meter and make a report ....10 Marks***

*CE2: Class test...10 Marks*

## Suggested Readings


1. **Bridge, J. S. (2003).** Rivers and Floodplains: Forms, Processes, and Sedimentary Record. Wiley-Blackwell.
2. **Brierley, G. J., & Fryirs, K. A. (2005).** River Styles: A Geomorphic Approach to Catchment Management. Wiley-Blackwell.
3. **Burbank, D. W., & Anderson, R. S. (2011).** Tectonic Geomorphology. Wiley-Blackwell.
4. **Charlton, R. (2007).** Fundamentals of Fluvial Geomorphology. Routledge. (Highly accessible, excellent for an introduction to channel patterns).
5. **Chow, V. T., Maidment, D. R., & Mays, L. W. (1988).** Applied Hydrology. McGraw-Hill. (The definitive guide for hydrographs and flood frequency analysis).
6. **Gregory, K. J., & Walling, D. E. (1973).** Drainage Basin Form and Process: A Geomorphological Approach.
7. Edward Arnold.
8. **Heathcote, I. W. (2009).** Integrated Watershed Management: Principles and Practices. Wiley. (Crucial for subunit 2.3).
9. **Kale, V. S. (Ed.). (2014).** Landscapes and Landforms of India. Springer. (Provides critical insights into the Ganga-Brahmaputra systems, deltas, and badlands).
10. **Knighton, D. (1998).** Fluvial Forms and Processes: A New Perspective. Routledge. (The gold standard for undergraduate fluvial mechanics).
11. **Kondolf, G. M., & Piégay, H. (Eds.). (2016).** Tools in Fluvial Geomorphology. Wiley-Blackwell. (The absolute best reference for practical laboratory and field assessment tools).
12. **Leopold, L. B., Wolman, M. G., & Miller, J. P. (1964).** Fluvial Processes in Geomorphology. Dover Publications.
13. **Robert, A. (2003).** Fluvial Processes: An Introduction to Fluid Dynamics and Hydraulics of Open Channels. Routledge.
14. **Rosgen, D. L. (1996).** Applied River Morphology. Wildland Hydrology Books. (Famous for river classification and bank erosion management).
15. **Schumm, S. A. (1977).** The Fluvial System. John Wiley & Sons. (Essential for understanding dynamic equilibrium and system thresholds).
16. **Schumm, S. A., Dumont, J. F., & Holbrook, J. M. (2000).** Active Tectonics and Alluvial Rivers. Cambridge
17. University Press. (Perfect for sub-unit 1.4).
18. **Singh, S. (2017).** Geomorphology. Pravalika Publications. (Extensively used across Indian universities for core landform terminology).
19. **Subramanian, K. (2013).** Engineering Hydrology. McGraw-Hill Education. (Highly relevant for quantitative catchment hydrology and Indian contexts).
20. **Thorne, C. R., Hey, R. D., & Newson, M. D. (1997).** Applied Fluvial Geomorphology for River Engineering and Management. John Wiley & Sons.
21. **Valdiya, K. S. (2015).** The Making of India: Geodynamic Evolution. Springer. (Excellent context for tectonic adjustments of major Himalayan and Peninsular rivers).
22. **Wohl, E. (2014).** A World of Rivers: Environmental Change on Large Rivers. University of Chicago Press. (In-depth look at human impacts and river degeneration)

**Course: 101** **Semester- I**

# Paper Name: Advanced Geomorphology & Hydrology (Practical)

Programme Code: PGGEO1

Paper Code: DSC-102P

Full Marks-25 Time-2:00 hrs

## Course Objectives

- Develop competence in quantitative geomorphic, morphometric and sedimentological analysis.
- Apply palaeogeomorphic and geochronological evidence to reconstruct past landscapes and environments.
- Acquire practical skills in hydrological measurement, hydrograph analysis and stream-discharge estimation.

## Course Outcomes

## After completing the course, the students are able to:

- Calculate and interpret morphometric parameters, hypsometric curves and grain-size statistics.
- Identify palaeo-channels and palaeo-floods and interpret geomorphic, stratigraphic and dendrochronological evidence.
- Measure infiltration and prepare, separate and interpret hydrographs and unit hydrographs.
- Estimate rainfall, runoff and stream discharge and construct discharge-rating curves.

### Unit–I:

**Topographic Map Analysis** **Marks-10**

Topographical map analysis, and numbering system, Basin demarcation, Ruggedness Index, Dissection Index & Roughness Index and drainage density; Altimetric and hypsometric curves; measurement of stream length, basin area, perimeter, basin circularity and elongation ratios, stream bifurcation ratio & grain-size analysis **[15 Hrs]**

### UNIT –II

**Hydrological Measurement and Analysis** **Marks-10**

Identification of hydrograph components; separation of base flow from a storm hydrograph; construction and interpretation of an annual hydrograph.; preparation and interpretation of rainfall–runoff relationships; measurement of stream velocity and discharge using a manual and water current meter and the area–velocity method. **[15 Hrs.]**

***Note 1: The value in the square brackets indicates contact hours per semester***

***Note 2: LNB+Viva Voce: 5 Marks***

## Suggested Readings

1. Charlton, R. (2008). Fundamentals of Fluvial Geomorphology. Routledge.
2. Gregory, K. J. & Walling, D. E. (1973). Drainage Basin Form and Process: A Geomorphological Approach. Edward Arnold.
3. Horton, R. E. (1945). "Erosional Development of Streams and Their Drainage Basins." Geological Society of America Bulletin, 56, 275–370.
4. Jensen, J. R. (2015). Introductory Digital Image Processing: A Remote Sensing Perspective (4th ed.). Pearson.
5. Knighton, D. (1998). Fluvial Forms and Processes: A New Perspective. Routledge.
6. Leopold, L. B., Wolman, M. G., & Miller, J. P. (1964). Fluvial Processes in Geomorphology. W. H. Freeman.

7. Raghunath, H. M. (2015). Hydrology: Principles, Analysis and Design (3rd ed.). New Age International.
8. Schumm, S. A. (1956). "The Evolution of Drainage Systems and Slopes in Badlands at Perth Amboy, New Jersey." Geological Society of America Bulletin, 67, 597–646.
9. Strahler, A. N. (1957). "Quantitative Analysis of Watershed Geomorphology." Transactions, American Geophysical Union, 38(6), 913–920.
10. Wilson, J. P. & Gallant, J. C. (Eds.). (2000). Terrain Analysis: Principles and Applications. Wiley.

**Course: 103** **Semester- I**

## Paper Name: Advanced Climatology (Theoretical)

Programme Code: PGGEO1

Paper Code: DSC-103T

Full Marks-50 Time-2:30 hrs

### Course Objectives

- Explain the thermodynamic, dynamic and moisture processes governing atmospheric behaviour.
- Analyse extreme weather systems, monsoon circulation and major modes of climate variability.
- Integrate climatic classification, climate change, forecasting technologies, applied climatology and Indian Knowledge Systems.

### Course Outcomes

### After completing the course, the students are able to:

- Apply thermodynamic laws, atmospheric forces and stability concepts to weather processes.
- Explain the formation of extreme weather systems and the controls of monsoon variability.
- Compare climatic classifications and evaluate evidence, causes and impacts of climate change.
- Assess weather-forecasting, Earth-observation and traditional knowledge approaches in climatology.

### UNIT–I:

**Dynamics of Atmosphere and Weather Systems** **Marks 25**

#### 1.1 Thermodynamic, Dynamic and Moisture Processes of the Atmosphere [15 Hrs]

First and Second Laws of Thermodynamics; entropy; latent heat; adiabatic and diabatic processes; atmospheric stability and instability; Pressure-gradient, gravitational and Coriolis forces; geostrophic and gradient winds; atmospheric vorticity and terminal velocity; barotropic and baroclinic conditions; mechanisms and forms of condensation and precipitation.

#### 1.2 Extreme Weather Systems and Monsoon Variability [15 Hrs]

Formation, characteristics and effects of tropical cyclones, mid-latitude cyclones, thunderstorms and cloudbursts; monsoon circulation and its driving mechanisms; role of jet streams, El Niño–Southern Oscillation (ENSO), Indian Ocean Dipole (IOD), Madden–Julian Oscillation (MJO), Equatorial Indian Ocean Oscillation (EQUINOO) and Quasi-Biennial Oscillation (QBO) in monsoon variability and prediction.

## UNIT–II:

### Climate Analysis, Forecasting Technologies and Indian Knowledge Systems Marks: 25

### 2.1 Climatic Classification, Climate Change and Applied Climatology [15 Hrs]

Köppen's and Thornthwaite's climatic classifications, with special reference to India; evidence, causes and impacts of global climate change; urban microclimate, palaeoclimatology, agroclimatology and bioclimatology; Proxy Records and Reconstruction of Quaternary and Holocene Climates

### 2.2 Weather Forecasting, Earth Observation and Indian Knowledge Systems [15 Hrs]

Weather forecasting and nowcasting; applications of remote sensing in weather observation and forecasting, with reference to INSAT and Meteosat satellites and Doppler Weather Radar; Vedic literature and Varāhamihira's Brihat Samhita concerning seasons, clouds, winds, rainfall and the hydrological cycle; Parāśara's Krishi-Parāśara and traditional agricultural weather forecasting.

***CE 1: Assignment: Visits to a weather station followed by the preparation of a 5-6 page report.... 10 Marks***
***CE 2: Class Test: 10 Marks***

## Suggested Readings

1. Ahrens, C. D., & Henson, R. (2024). Essentials of meteorology: An invitation to the atmosphere (9th ed.). Cengage Learning.
2. Barry, R. G., & Chorley, R. J. (2009). Atmosphere, weather and climate (9th ed.). Routledge.
3. Bradley, R. S. (2015). Paleoclimatology: Reconstructing climates of the Quaternary (3rd ed.). Academic Press.
4. Critchfield, H. J. (1983). General climatology (4th ed.). Prentice Hall of India.
5. Emery, W., & Camps, A. (2017). Introduction to satellite remote sensing: Atmosphere, ocean, land and cryosphere applications. Elsevier.
6. Hartmann, D. L. (2026). Global physical climatology (3rd ed.). Elsevier.
7. Lal, D. S. (2012). Climatology. Sharda Pustak Bhawan.
8. Mahadevan, B., Bhat, V. R., & Nagendra Pavana, R. N. (2022). Introduction to Indian knowledge systems: Concepts and applications. PHI Learning.
9. McIlveen, R. (2010). Fundamentals of weather and climate (2nd ed.). Oxford University Press.
10. Milrad, S. (2025). Synoptic analysis and forecasting: An introductory toolkit (2nd ed.). Elsevier.
11. Oliver, J. E., & Hidore, J. J. (2002). Climatology: An atmospheric science (2nd ed.). Pearson Education.
12. Robertson, A. W., & Vitart, F. (Eds.). (2025). Subseasonal to seasonal prediction: The gap between weather and climate forecasting (2nd ed.). Elsevier.
13. Rohli, R. V., & Vega, A. J. (2018). Climatology (4th ed.). Jones & Bartlett Learning.
14. Trewartha, G. T. (1968). An introduction to climate (4th ed.). McGraw-Hill.
15. Wallace, J. M., & Hobbs, P. V. (2006). Atmospheric science: An introductory survey (2nd ed.). Academic Press.

**Course: 103** **Semester- I**

# Paper Name: Advanced Climatology (Practical)

Programme Code: PGGEO1

Paper Code: DSC-103P

Full Marks-25 Time-2:00 hrs

## Course Objectives

- Apply climatic water-balance and agroclimatic techniques to geographical data.
- Develop competence in climatic trend analysis, change detection and climate-index calculation.
- Interpret satellite-derived and radar-based products used in climate and weather analysis.

## Course Outcomes

## After completing the course, the students are able to:

- Prepare climatic water-balance graphs, crop calendars, growing-degree-day calculations and ergographs.
- Estimate or downscale weather data using appropriate web-based software and models.
- Analyse climatic trends using moving averages, regression, Mann–Kendall tests and Sen's slope.
- Calculate climate indices and derive and interpret LST, NDMI, TCI, SUHI and radar products.

## UNIT–I:

### Climatic Analysis and Agroclimatology Marks 10

Drawing of climatological water balance graph; Isoanomalous curves and relative-temperature graphs; Preparation of crop calendars, Calculation of Growing Degree Days, and ergographs; Estimation or downscaling of weather data using freely available web-based standardized software and models. **[15 Hrs]**

## UNIT–II:

### Climate Indices, Forecasting and Remote Sensing Marks-10

Trend and anomaly analysis of temperature and rainfall using moving averages, linear regression, Mann–Kendall test and Sen's slope; Interpretation of Doppler Weather Radar charts and short-range weather forecasting; **Calculation of climatic indices:** Moisture/Aridity Index; Temperature–Humidity Index; **Remote Sensing Applications in Climatology**: Land Surface Temperature (LST), Normalized Difference Moisture Index (NDMI), Temperature Condition Index (TCI). **[15 Hrs]**

***Note 1: The value in the square brackets indicates contact hours per semester***

***Note 2: LNB + Viva Voce: 5 Marks***

## Suggested Readings


1. Bishnoi, O. P. (2010). *Applied agroclimatology*. Oxford Book Company.
2. Goosse, H. (2015). *Climate system dynamics and modelling*. Cambridge University Press.
3. Kuenzer, C., & Dech, S. (Eds.). (2013). *Thermal infrared remote sensing: Sensors, methods, applications*. Springer.
4. Mavi, H. S., & Tupper, G. J. (2004). *Agrometeorology: Principles and applications of climate studies in agriculture*. Food Products Press.

5. Naveena, K., Tasiya, R., & Rana, S. (2023). *Spatio-temporal trend analysis of rainfall using R software and ArcGIS: A case study of an agro-climatic zone-1 of Gujarat, India*. Springer. https://doi.org/10.1007/978-3-031-48259-5
6. Pu, R. (2020). *Thermal infrared remote sensing: Principles and applications*. CRC Press.
7. Rao, B. V. R. (2008). *Remote sensing and GIS applications in agricultural meteorology*. New India Publishing Agency.
8. Sahu, D. D., Patel, H. R., & Chopada, M. C. (2013). *Agrometeorology at a glance*. Agrobios (India).
9. Thornthwaite, C. W., & Mather, J. R. (1955). *The water balance*. Drexel Institute of Technology.
10. Wilks, D. S. (2019). *Statistical methods in the atmospheric sciences* (4th ed.). Academic Press.

**Course: 104** **Semester- I**

## Paper name: Geography of Health(Theory)

Programme Code: PGGEO1

Paper Code: DSE-104A T

Full Marks-50 Time-2:30 hrs

### Course Objectives

- Introduce the foundations, approaches and development of health geography.
- Examine disease ecology, health determinants, emerging diseases, environmental exposure and well-being.
- Evaluate healthcare systems, accessibility, utilization and regional inequalities.

### Course Outcomes

### After completing the course, the students are able to:

- Distinguish the concepts, scope and approaches of health geography, epidemiology and public health.
- Analyse disease ecology and the physical, social, economic and cultural determinants of health.
- Apply epidemiological and environmental-health concepts to dimensions of well-being.
- Evaluate healthcare provision, accessibility, utilization and spatial disparities.

### UNIT–I:

### Foundations of Health Geography and Disease Ecology Marks-25

#### 1.1 Foundations and Approaches to Health Geography [15 Hrs]

Meaning, nature, scope and significance of health geography; evolution and development of health geography; approaches to the study of health geography.

#### 1.2 Health, Disease Ecology and Determinants of Health [15 Hrs]

Concepts and dimensions of health; health, illness and disease; concept and types of disease ecology; globally emerging diseases; physical, social, economic and cultural determinants of health.

## UNIT–II:

## Epidemiology, Well-Being and Healthcare Systems Marks 25

### 2.1 Epidemiology, Environmental Health and Well-Being [15 Hrs]

Definition and principles of epidemiology; environmental exposures and their impacts on human health; physical, social, psychological and environmental dimensions of well-being.

### 2.2 Healthcare Systems, Accessibility and Utilisation [15 Hrs]

Distribution of healthcare facilities; public and private healthcare systems; rural and urban healthcare systems; primary, secondary and tertiary healthcare; concepts of accessibility, availability and affordability; healthcare utilization; healthcare inequalities.

***Note: The value in the parentheses indicates contact hours per semester***

****CE 1: Visit to any health care centre / OPD and make a note in a 5-6 page report -- 10 Marks***

***CE 2: Class Test: 10 marks***

## Suggested Readings


1. Akhtar, R. (Ed.). (1991). Environment and Health: Themes in Medical Geography. New Delhi: Ashish Publishing House.
2. Alam, A., Rukhsana, Biswas, S., Islam, N., & Roy, R. (Eds.). (2024). Population, Environment and Disease: Towards Health Geography. Cham: Springer. (Springer Nature)
3. Alam, A., Rukhsana, Islam, N., Sarkar, B., & Roy, R. (Eds.). (2023). Population, Sanitation and Health: A Geographical Study Towards Sustainability. Cham: Springer. (Springer Nature)
4. Cromley, E. K., & McLafferty, S. L. (2011). GIS and Public Health (2nd ed.). New York: Guilford Press. (Guilford Press)
5. Emch, M., Root, E. D., & Carrel, M. (2017). Health and Medical Geography (4th ed.). New York: Guilford Press. (Guilford Press)
6. Evans, R. G., Barer, M. L., & Marmor, T. R. (Eds.). (1994). Why Are Some People Healthy and Others Not? The Determinants of Health of Populations. New York: Aldine de Gruyter.
7. Gatrell, A. C., & Elliott, S. J. (2015). Geographies of Health: An Introduction (3rd ed.). Chichester: Wiley-Blackwell. (Google Books)
8. Hazen, H., & Anthamatten, P. (2020). An Introduction to the Geography of Health (2nd ed.). London: Routledge. (Routledge)
9. International Institute for Population Sciences. National Family Health Survey Reports and District Fact Sheets. Mumbai: IIPS. latest available editions.
10. Jones, K., & Moon, G. (1987). Health, Disease and Society: A Critical Medical Geography. London: Routledge & Kegan Paul. (Routledge)
11. Meade, M. S., & Emch, M. (2010). Medical Geography (3rd ed.). New York: Guilford Press. (ResearchGate)
12. Ministry of Health and Family Welfare. Government of India. National Health Profile. Rural Health Statistics. Health Management Information System and National Health Programme Reports. New Delhi: Government of India. latest available editions.
13. Misra, R. P. (2007). Geography of Health. New Delhi: Concept Publishing Company.
14. Office of the Registrar General and Census Commissioner, India. Sample Registration System Statistical Reports. SRS Bulletins and Causes of Death in India Reports. New Delhi: Government of India. latest available editions. (Census India)
15. Singhai, G. C. (2006). Medical Geography. Gorakhpur: Vasundhara Publication.

**Course : 104** **Semester - I**

## Paper name: Geography of Health (Practical)

Programme Code: PGGEO1

Paper Code: DSE-104A P

Full Marks-25 Time-2:00 hrs

## Course Objectives

- Use demographic and health datasets for spatial analysis and disease mapping.
- Apply trend and age–sex-profile techniques to health data.
- Measure healthcare accessibility, disparity and composite health conditions.

## Course Outcomes

## After completing the course, the students are able to:

- Extract NFHS data and represent disease patterns through choropleth maps and cartograms.
- Analyse disease trends and prepare age–sex-specific health profiles.
- Calculate shortest-path and detour indices.
- Construct and interpret a composite health index using standardized z-scores.

## UNIT-I

### Demographic and Health Data Analysis — 10 Marks

Data extraction from secondary sources; Disease Mapping by Choropleth Maps and Cartograms showing the spatial distribution of health-related variables; Preparation of an age–sex-specific health profile, preparation of Karnel of Density Estimation map. **[15 Hrs]**

## Unit II

### Healthcare Availability and Indexing — 10 Marks

Measurement of nearest healthcare-facility distance by shortest path matrix and detour index from supplied data or maps; Preparation of a simple Composite Health Index using Z-scores. **[15 Hrs]**

***Note 1: The value in the square brackets indicates contact hours per semester***

***Note 2: LNB + Viva Voce: 5 Marks***

## Suggested Readings


1. **Cromley, E. K., & McLafferty, S. L. (2012).** *GIS and public health* (2nd ed.). Guilford Press.
2. **Gatrell, A. C., & Elliott, S. J. (2014).** *Geographies of health: An introduction* (3rd ed.). Wiley-Blackwell.
3. **Joseph, A. E., & Phillips, D. R. (1984).** *Accessibility and utilization: Geographical perspectives on health care delivery*. Harper & Row.
4. **Koch, T. (2017).** *Disease maps: Epidemics on the ground*. University of Chicago Press.
5. **Mishra, R. P. (2007).** *Geography of health: A study in medical geography*. Rawat Publications.
6. **Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., & Giovannini, E. (2008).** *Handbook on constructing composite indicators: Methodology and user guide*. Organization for Economic Co-operation and Development (OECD) Publishing.
7. **Weeks, J. R. (2020).** *Population: An introduction to concepts and issues* (13th ed.). Cengage Learning.

**OR**

**Course:104 Semester- I**

## Paper name: Geography of Tourism and Hospitality Management (Theory)

Programme Code: PGGEO I

Paper Code: DSE-104B T

Full Marks-50 Time-2:30 hrs

### Course Objectives

- Explain the foundations, geographical dimensions and evolution of tourism.
- Analyse tourist flows, tourism systems, spatial models and carrying capacity.
- Examine hospitality structures, human resources, customer relations, ethics and destination management.

### Course Outcomes

After completing the course, the students are able to:

- Explain key tourism concepts, types, geographical perspectives and patterns of mobility.
- Apply Leiper's system, TALC, push–pull, core–periphery and carrying-capacity concepts.
- Classify hospitality establishments and explain the tourism–hospitality relationship.
- Evaluate human-resource, customer-relationship, professional-ethics and destination-management practices.

### UNIT–I:

### Tourism Geography, Systems and Spatial Dynamics Marks 25

#### 1.1 Foundations and Geographical Perspectives of Tourism [15 Hrs]

Meaning, nature, scope and significance of tourism geography; evolution and types of tourism; conceptual distinctions among tourism, travel, recreation and leisure; meaning of tourist, excursionist, visitor and traveller; tourism as a geographical phenomenon; and the role of space, place, landscape and mobility in tourism.

#### 1.2 Tourist Flows, Systems and Spatial Models [15 Hrs]

Tourist flows and spatial interaction; physical, economic, social, technological and political factors influencing tourist mobility; Leiper's Tourism System; Butler's Tourism Area Life Cycle (TALC); push and pull factors; core–periphery relationships in tourism; and tourism carrying capacity.

### UNIT-II:

### Hospitality and Management Marks- 25

#### 2.1 Foundations and Structure of the Hospitality Industry

Meaning, nature, scope, and characteristics of hospitality; Evolution and classification of hospitality establishments; Hotels, resorts, homestays, guest houses, hostels, and alternative accommodation; Relationship between tourism, travel, and hospitality industries **[15 Hrs]**

**2.2 Human Resources, Customer Relations, and Professional Management in Hospitality**

Human resources in tourism and hospitality; Employee motivation and performance management; Customer relationship management; Occupational ethics and professional conduct; Destination management organizations **[15Hrs]**

*Note: The value in the parentheses indicates contact hours per semester*

**CE 1: Visit some Hotels/Homestay/Resorts etc. and make a note in a 5-6 page report – 10 Marks*

*CE 2: Class Test – 10 Marks*

## Suggested Readings


1. Brunt, P., Horner, S., &Semley, N. Research Methods in Tourism, Hospitality and Events Management. SAGE.
2. Gupta, S. P. Statistical Methods. Sultan Chand & Sons.
3. Hall, C. M., & Page, S. J. The Geography of Tourism and Recreation: Environment, Place and Space. Routledge.
4. Hall, C. M., Gössling, S., & Scott, D. (Eds.). The Routledge Handbook of Tourism and Sustainability. Routledge.
5. Hill, J., & Gale, T. (Eds.). Ecotourism and Environmental Sustainability: Principles and Practice. Routledge.
6. Košćak, M., & O'Rourke, T. Ethical and Responsible Tourism: Managing Sustainability in Local Tourism Destinations. Routledge.
7. Ministry of Tourism, Government of India. India Tourism Statistics and other official tourism reports.
8. Timothy, D. J. Tourism Planning. Routledge.
9. UN Tourism. Tourism Statistics: Concepts, Definitions and Technical Guidelines.
10. Williams, S. Tourism Geography: Critical Understandings of Place, Space and Experience. Routledge.


## Course : 104 Semester - I

## Course name: Geography of Tourism and Hospitality Management (Practical)

Programme Code: PGGEO1

Paper Code: DSE-104B P

Full Marks-25 Time-2:00 hrs

## Course Objectives

- Apply quantitative, qualitative, cartographic and statistical methods to tourism data.
- Undertake a structured environmental-impact assessment for tourism activity.
- Measure hospitality performance and design digital approaches to guest-feedback analysis.

## Course Outcomes

### After completing the course, the students are able to:

- Calculate tourism potential, growth trends and tourist-satisfaction indices.
- Conduct interviews and digital ethnography and apply mapping, time-series and correlation techniques.
- Prepare a tourism EIA using impact ratings, Average Score Method weights and weighted scores.
- Calculate occupancy rate, ADR and RevPAR and analyze online guest reviews and customer feedback.

## UNIT–I:

### Tourism Research and Analysis — Marks: 10

Tourism-potential identification; growth rate and trend analysis of tourist arrivals; Tourist Satisfaction Index; In-depth interviews; digital ethnography and qualitative data interpretation; Preparation of a tourist flow Map, time-series projection using even, uneven and least-squares methods; Pearson's and Spearman's correlations for tourism-generated economic impacts. [**15 Hrs**]

## UNIT–II:

### Tourism Impact and Hospitality — Marks: 10

Preparation of a tourism EIA using supplied maps and data; impact identification and rating; Tourism-impact assessment using tourist data by the Average Score and weighted-score Method; Hotel Occupancy Rate, ADR and RevPAR; online guest-review analysis; digital customer-feedback system. [**15 Hrs**]

***Note 1: The value in the square brackets indicates contact hours per semester***

***Note 2: LNB + Viva Voce: 5 Marks***

## Suggested Readings


1. **Buglear, J. (2019).** Stats means business: Statistics and business analytics for business, hospitality and tourism. Routledge.
2. **Hayes, D. K., & Hayes, J. D. (2022).** Revenue management for the hospitality industry (2nd ed.). John Wiley & Sons.
3. **Holden, A. (2016).** Environment and tourism (3rd ed.). Routledge.
4. **Kaurav, R. P. S. (2024).** An SPSS guide for tourism, hospitality and events researchers (1st ed.). Routledge.
5. **Morrison-Saunders, A. (2018).** Advanced introduction to environmental impact assessment. Edward Elgar Publishing.
6. **Smith, M. (2024).** Hospitality analytics for beginners: Learn data-driven hotels, restaurants, tourism, revenue management, AI, and business intelligence through real-world business examples. Independently Published.
7. **Thrane, C. (2022).** Doing statistical analysis: A student's guide to quantitative research. Routledge.
8. **Veal, A. J. (2017).** Research methods for leisure and tourism (5th ed.). Pearson.