

**B.A./B.Sc. PROGRAMME**

**SYLLABUS FOR B.A./B.SC. (HONS) NEP PROGRAMME  
IN  
GEOGRAPHY**

**w.e.f. SESSION: 2025-26**



**DEPARTMENT OF GEOGRAPHY  
CHAUDHARY CHARAN SINGH UNIVERSITY,  
MEERUT**

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**Semester Wise Course Titles of the B.A./B.Sc. (Hons) NEP Geography**  
**Course Structure**

| Year | Award of Course | Sem.  | Course Code | Course Title                                        | Th./Pr. | Course Type | Credit | Lecture, Tutorial, Practical (L-T-P) |                  |              | Maximum Marks | Total Credits              |
|------|-----------------|-------|-------------|-----------------------------------------------------|---------|-------------|--------|--------------------------------------|------------------|--------------|---------------|----------------------------|
|      |                 |       |             |                                                     |         |             |        | Lect.                                | Internal Th./Pr. | External Th. |               |                            |
| 1    | Certificate     | Sem-1 | A110151T    | Geomorphology                                       | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           | 20<br>(Included AEC 2 Cr.) |
|      |                 |       | A110152T    | Climatology                                         | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110153T    | Oceanography                                        | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110154P    | Representation of Geographical Data (Practical)     | Pr.     | Core/Major  | 3      | 60                                   | 100              | -            | 100           |                            |
|      |                 |       | -           | Physical Geography                                  | Th.     | Minor       | 4      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | -           | Fundamental of Remote Sensing and GIS               | Th.     | SEC         | 2      | 30                                   | 60               | 40           | 100           |                            |
|      |                 |       | -           | Sustainable Resource Management                     | Th.     | VAC         | Q      | 30                                   | -                | 100          | 100           |                            |
|      |                 | Sem-2 | A110251T    | Geography of India (Physical)                       | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           | 20<br>(Included AEC 2 Cr.) |
|      |                 |       | A110252T    | Geography of India (Socio-Economic)                 | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110253T    | Resource Geography                                  | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110254P    | Cartographic Techniques (Practical)                 | Pr.     | Core/Major  | 3      | 60                                   | 100              | -            | 100           |                            |
|      |                 |       | -           | Geography of India                                  | Th.     | Minor       | 4      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | -           | Socio-Economic Data and Diagrammatic Representation | Th.     | SEC         | 2      | 30                                   | 60               | 40           | 100           |                            |
|      |                 |       | -           | Tourism Geography                                   | Th.     | VAC         | Q      | 30                                   | -                | 100          | 100           |                            |
| 2    | Diploma         | Sem-3 | A110351T    | Agriculture Geography                               | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           | 20<br>(Included AEC 2 Cr.) |
|      |                 |       | A110352T    | Geographical Thought                                | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110353T    | Economic Geography                                  | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110354P    | Statistical Techniques in Geography (Practical)     | Pr.     | Core/Major  | 3      | 60                                   | 100              | -            | 100           |                            |
|      |                 |       | -           | Environmental Geography                             | Th.     | Minor       | 4      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | -           | Representation of Geographical Data                 | Th.     | SEC         | 2      | 30                                   | 60               | 40           | 100           |                            |
|      |                 |       | A110451T    | Fundamental of Remote Sensing and GIS               | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           | 20<br>(Included AEC 2 Cr.) |
|      |                 | Sem-4 | A110452T    | Regional Geography of Southeast Asia                | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110453T    | Environmental Geography                             | Th.     | Core/Major  | 3      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | A110454P    | Fundamental of Remote Sensing and GIS (Practical)   | Pr.     | Core/Major  | 3      | 60                                   | 100              | -            | 100           |                            |
|      |                 |       | -           | Regional Planning and Development                   | Th.     | Minor       | 4      | 60                                   | 25               | 75           | 100           |                            |
|      |                 |       | -           | Basic Cartographic Techniques                       | Th.     | SEC         | 2      | 30                                   | 60               | 40           | 100           |                            |
|      |                 |       | -           | Basic Concept of Settlement                         | Th.     | VAC         | Q      | 30                                   | -                | 100          | 100           |                            |

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|   |                                    |       |                |                                                                       |                                                         |            |            |    |     |     |     |     |     |  |
|---|------------------------------------|-------|----------------|-----------------------------------------------------------------------|---------------------------------------------------------|------------|------------|----|-----|-----|-----|-----|-----|--|
| 3 | Graduation Degree                  | Sem-5 | A110551T       | Disaster Management                                                   | Th.                                                     | Core/Major | 6          | 60 | 25  | 75  | 100 | 20  |     |  |
|   |                                    |       | A110552P       | Surveying and Survey (Practical)                                      | Pr.                                                     | Core/Major | 6          | 60 | 100 | -   | 100 |     |     |  |
|   |                                    |       | -              | Human Geography                                                       | Th.                                                     | Minor      | 4          | 60 | 25  | 75  | 100 |     |     |  |
|   |                                    |       | -              | Statistical Techniques in Geography                                   | Th.                                                     | Minor      | 4          | 60 | 25  | 75  | 100 |     |     |  |
|   |                                    |       | A110651T       | Regional Planning and Development                                     | Th.                                                     | Core/Major | 6          | 60 | 25  | 75  | 100 |     |     |  |
|   | 20                                 |       | Sem-6          | A110652P                                                              | Socio-Economic Survey and Field-Trip Report (Practical) | Pr.        | Core/Major | 6  | 60  | 100 | -   | 100 |     |  |
|   |                                    |       |                | -                                                                     | Contemporary Environmental Issues                       | Th.        | Minor      | 4  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | -                                                                     | Current Trends and Issues in Geography                  | Th.        | Minor      | 4  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | A110751T                                                              | Geography of Uttar Pradesh                              | Th.        | Core/Major | 6  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | A110752T                                                              | Political Geography                                     | Th.        | Core/Major | 6  | 60  | 25  | 75  | 100 |     |  |
| 4 | Graduation (Honours)               | Sem-7 | -              | Rural Geography                                                       | Th.                                                     | Minor      | 4          | 60 | 25  | 75  | 100 | 20  |     |  |
|   |                                    |       | -              | Research Methodology                                                  | Th                                                      | -          | 4          | 60 | 25  | 75  | 100 |     |     |  |
|   |                                    |       | A110851T       | Urban Geography                                                       | Th.                                                     | Core/Major | 6          | 60 | 25  | 75  | 100 |     |     |  |
|   |                                    |       | A110852P       | Application of Remote Sensing and GIS in Thematic Mapping (Practical) | Pr.                                                     | Core/Major | 6          | 60 | 100 | -   | 100 |     |     |  |
|   |                                    |       | -              | Aerial Photography                                                    | Th.                                                     | -          | 4          | 60 | 25  | 75  | 100 |     |     |  |
|   | 20                                 |       | Sem-8          | -                                                                     | Seminar                                                 | -          | -          | 4  | -   | -   | -   | 100 |     |  |
|   |                                    |       |                | A110751T                                                              | Geography of Uttar Pradesh                              | Th         | Core/Major | 6  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | A110752T                                                              | Political Geography                                     | Th         | Core/Major | 6  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | -                                                                     | Research Methodology                                    | Th         | -          | 4  | 60  | 25  | 75  | 100 |     |  |
|   |                                    |       |                | -                                                                     | Synopsis of Dissertation                                | Th         | -          | 4  | 60  | 25  | 75  | 100 |     |  |
| 4 | Graduation (Honours with Research) | Sem-7 | A110851T       | Urban Geography                                                       | Th                                                      | Core/Major | 6          | 60 | 25  | 75  | 100 | 20  |     |  |
|   |                                    |       | -              | Application of Remote Sensing and GIS in Thematic Mapping (Practical) | Pr.                                                     | Core/Major | 6          | 60 | 100 | -   | 100 |     |     |  |
|   |                                    |       | A110853P       | Dissertation                                                          | Pr.                                                     | Core/Major | 8          | 60 | 100 | -   | 100 |     |     |  |
|   |                                    | Sem-8 | Total Credited |                                                                       |                                                         |            |            |    |     |     |     |     | 160 |  |

Abbreviation: Th. – Theory, Pr. – Practical, Lect. – Lecture, AEC – Ability Enhancement Course, VAC – Value Additional Course, SEC – Skill Enhancement Course, Q – Qualified.

Note: In the fourth year, you can choose either Graduation (Honours) or Graduation (Honours with Research).

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 1. A signature that appears to read "Sandeep".  
 2. A signature that appears to read "Gurpreet".  
 3. Initials "KJ" with a checkmark.

## GEOMORPHOLOGY

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                    | Maximum Marks : 100        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Course Code: A110151T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                    | External (Theory) : 75     |
| Course Name: Geomorphology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                    | Internal Assessment : 25   |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                    | • Mid-Term Exam : 20       |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                    | • Academic Activities : 05 |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                    |                            |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To develop an understanding of the origin, evolution, and classification of landforms.</li> <li>2. To analyze the dynamic processes responsible for shaping the Earth's surface.</li> <li>3. To understand the role of internal and external forces in landform development.</li> </ol>                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                    |                            |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to: <ol style="list-style-type: none"> <li>1. Explain the basic concepts, scope, and relevance of geomorphology in geographical studies.</li> <li>2. Identify and analyze landforms and geomorphic processes in diverse environmental settings.</li> <li>3. Interpret landform evolution using theories and models from classical and modern geomorphology.</li> <li>4. Apply geomorphological knowledge to practical problems such as natural hazard management, environmental planning, and land use.</li> </ol> |                                                                                                                                                                                                                                                                    |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                    |                            |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Topics                                                                                                                                                                                                                                                             | No. of Lectures:           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                    | 60                         |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Definition, nature, scope, and significance of geomorphology, Fundamental concept of Geomorphology, The internal structure of the Earth.                                                                                                                           | 15                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Earth Movement: endogenetic and exogenetic processes, Concept of Isostasy: Airy and Pratt, Endogenic processes: Earthquakes, Volcanoes, Folding and Faulting, Exogenetic Processes: Denudation (Weathering and Erosion, mass wasting: classification and factors). | 15                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Theories of landforms development by W.M. Davis, Penck, Evolution of landforms Process by fluvial, aeolian, glacial, coastal, and karst processes.                                                                                                                 | 15                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Recent trends in geomorphology, Applied Geomorphology in urban and regional planning, hazard management, environmental management and conservation, hydrology, geomorphology and mineral exploration, geomorphology and engineering geomorphology.                 | 15                         |

#### Suggested Readings:

1. Bloom, A. L. (2004). Geomorphology: A Systematic Analysis of Late Cenozoic Landforms (3rd ed.). Pearson Education.
2. Chorley, R.J. (1972): Spatial Analysis of Geomorphology, Methuen, London.
3. Dayal, P. (1996). A Textbook of Geomorphology. Shukla Book Depot.
4. Huggett, R. J. (2011). Fundamentals of Geomorphology (3rd ed.). Routledge.
5. Kale, V. S., & Gupta, A. (2001). Introduction to Geomorphology. Orient Blackswan.
6. Ritter, D. F., Kochel, R. C., & Miller, J. R. (2011). Process Geomorphology (5th ed.). Waveland Press.
7. Singh, S. (2007). Geomorphology (English & Hindi editions). Prayag Pustak Bhawan.
8. Sparks, B. W. (1986). Geomorphology (3rd ed.). Longman Scientific & Technical.
9. Strahler, A. N., & Strahler, A. H. (2005). Introducing Physical Geography (4th ed.). Wiley.
10. Summerfield, M. A. (1991). Global Geomorphology. Prentice Hall.
11. Thornbury, W. D. (1969). Principles of Geomorphology (2nd ed.). Wiley Eastern.



## CLIMATOLOGY

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

|                                                                                                                     |                                                                                                                                                                                                                                                                             |                                |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Semester-I (1 <sup>st</sup> Year)                                                                                   |                                                                                                                                                                                                                                                                             |                                |
| Programme: B.A./B.Sc.                                                                                               | Maximum Marks : 100                                                                                                                                                                                                                                                         |                                |
| Course Code: A110152T                                                                                               | External (Theory) : 75                                                                                                                                                                                                                                                      |                                |
| Course Name: Climatology                                                                                            | Internal Assessment : 25                                                                                                                                                                                                                                                    |                                |
| Theory/Practical: Theory                                                                                            | • Mid-Term Exam : 20                                                                                                                                                                                                                                                        |                                |
| Course Type: Core/Major                                                                                             | • Academic Activities : 05                                                                                                                                                                                                                                                  |                                |
| Credit: 3                                                                                                           |                                                                                                                                                                                                                                                                             |                                |
| <b>Course Objectives:</b>                                                                                           |                                                                                                                                                                                                                                                                             |                                |
| 1. To understanding of the structure, composition, and dynamics of the Earth's atmosphere.                          |                                                                                                                                                                                                                                                                             |                                |
| 2. To analyze the elements of weather and climate and their spatial and temporal variations.                        |                                                                                                                                                                                                                                                                             |                                |
| 3. To understand the mechanisms behind atmospheric circulation, precipitation, and climatic classification systems. |                                                                                                                                                                                                                                                                             |                                |
| 4. To introduce the concepts of climate change, variability, and their global and regional impacts                  |                                                                                                                                                                                                                                                                             |                                |
| <b>Course Outcomes:</b>                                                                                             |                                                                                                                                                                                                                                                                             |                                |
| After completing this course, students will be able to:                                                             |                                                                                                                                                                                                                                                                             |                                |
| 1. Understand and explain the fundamental concepts, structure, and behavior of the atmosphere.                      |                                                                                                                                                                                                                                                                             |                                |
| 2. Analyze meteorological elements and interpret weather maps and climatic data.                                    |                                                                                                                                                                                                                                                                             |                                |
| 3. Explain global atmospheric circulation patterns and climatic classification systems.                             |                                                                                                                                                                                                                                                                             |                                |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                              |                                                                                                                                                                                                                                                                             |                                |
| <b>Units</b>                                                                                                        | <b>Topics</b>                                                                                                                                                                                                                                                               | <b>No. of Lectures:<br/>60</b> |
| I                                                                                                                   | Definition, nature, scope, and significance of climatology, composition and structure of the atmosphere, Insolation, heat budget of the Earth, Temperature: distribution, inversion of temperature and global patterns, atmospheric pressure and wind systems, jet streams. | 15                             |
| II                                                                                                                  | Humidity and Precipitation, Stability and instability in the atmosphere.                                                                                                                                                                                                    | 15                             |
| III                                                                                                                 | Air masses, Fronts, Cyclones: origin, structure, and impacts, Anticyclones: characteristics and effects on weather, Thunderstorms, tornadoes, and local weather disturbances.                                                                                               | 15                             |
| IV                                                                                                                  | Climatic classification of Koppen and Thornthwaite, Climate change: natural and anthropogenic factors, Greenhouse effect, global warming, and extreme weather events, Impacts of climate change and international initiatives (IPCC, UNFCCC, Paris Agreement).              | 15                             |

#### Suggested Readings:

1. Barry, R. G., & Chorley, R. J. (2010). Atmosphere, Weather and Climate (9th ed.). London: Routledge.
2. Critchfield, H. J. (1983). General Climatology (4th ed.). New Delhi: Prentice Hall of India.
3. Das, P. K. (2005). Monsoons (3rd ed.). New Delhi: National Book Trust.
4. IPCC. (2021). Sixth Assessment Report. Intergovernmental Panel on Climate Change. Retrieved from <https://www.ipcc.ch>
5. Lal, D.S. (1986): Climatology, Chaitanya Publication, Allahabad.
6. Oliver, J. E., & Hidore, J. J. (2002). Climatology: An Atmospheric Science (2nd ed.). Upper Saddle River, NJ: Pearson.
7. Petterssen, S. (1958). Introduction to Meteorology. New York: McGraw-Hill.
8. Singh, S. (2008). Climatology. Allahabad: Prayag Pustak Bhawan.
9. Trewartha, G. T., & Horn, L. H. (1980). An Introduction to Climate (5th ed.). New York: McGraw-Hill.

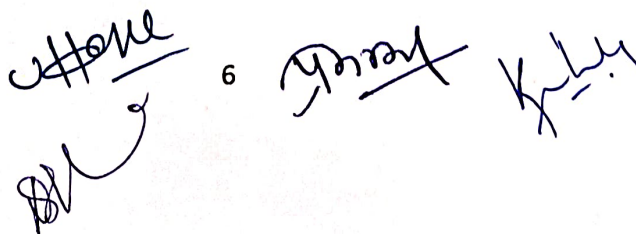
## OCEANOGRAPHY

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                       |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                       | Maximum Marks : 100        |
| Course Code: A110153T                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                       | External (Theory) : 75     |
| Course Name: Oceanography                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                       | Internal Assessment : 25   |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                       | • Mid-Term Exam : 20       |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                       | • Academic Activities : 05 |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                            |
| <b>Course Objectives:</b>                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                            |
| <ol style="list-style-type: none"><li>1. To introduce the origin, structure, and physical properties of oceans.</li><li>2. To understand the dynamic processes operating in ocean basins, including waves, tides, and currents.</li><li>3. To explore the nature and distribution of marine resources and ecosystems.</li><li>4. To examine the role of oceans in global climate regulation and human-environment interactions</li></ol> |                                                                                                                                                                                                                       |                            |
| <b>Course Outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                            |
| After successful completion of this course, students will be able to:                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                       |                            |
| <ol style="list-style-type: none"><li>1. Describe the origin, structure, and composition of oceans and ocean basins.</li><li>2. Analyze the physical and dynamic processes such as waves, tides, and ocean currents.</li><li>3. Evaluate the importance of oceans as a resource and understand the associated environmental concerns.</li></ol>                                                                                          |                                                                                                                                                                                                                       |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                       |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Topics</b>                                                                                                                                                                                                         | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nature, scope, and significance of oceanography, Oceans: origin, evolution, distribution and characteristics, Ocean bottom topography: continental shelf, slope, abyssal plain, oceanic trenches, mid-oceanic ridges. | 15                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                       | Temperature and salinity of ocean water: factors and distribution, Composition of seawater, Oceanic Deposits.                                                                                                         | 15                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                      | Tides: origin, types and theories (Equilibrium and Dynamic), Ocean currents: causes, types and global patterns, Coral reefs: types and theories of their origin, Role of ocean currents in climate control.           | 15                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                       | Marine resources: biotic, abiotic, and energy resources, Marine pollution: sources, types, and impacts, Coastal erosion and management, mangroves: distribution and ecological significance.                          | 15                         |

#### Suggested Readings:

3. Barry, R.G. and Chorley P.G. (1998): Atmosphere, Weather and Climate, Routledge, London and New York.
4. Duxbury, A. C., & Duxbury, A. B. (2014). An Introduction to the World's Oceans. McGraw-Hill Education.
1. Garrison, T. (2012). Oceanography: An Invitation to Marine Science (8th ed.). Cengage Learning.
5. IPCC Reports on Ocean and Cryosphere (2019). Special Report. <https://www.ipcc.ch>
6. King, C. A. M. (1962). Oceanography for Geographers. Edward Arnold.
7. Pinet, P. R. (2009). Invitation to Oceanography (5th ed.). Jones & Bartlett Learning.
2. Sharma, R. C. & Vatal, M. (1980). Oceanography for Geographers. Chaitanya Publishing House.
8. Singh, S. (2008). Oceanography. Prayag Pustak Bhawan, Allahabad.
9. Sverdrup, K. A., & Armbrust, E. V. (2014). An Introduction to the World's Oceans (10th ed.). McGraw-Hill Education.
3. Thurman, H. V., & Trujillo, A. P. (2016). Essentials of Oceanography (12th ed.). Pearson Education.





## REPRESENTATION OF GEOGRAPHICAL DATA (PRACTICAL)

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                   | Maximum Marks : 100 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Course Code: A110154P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                   | Practical : 100     |
| Course Name: Representation of Geographical Data (Practical)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                   |                     |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                   |                     |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                   |                     |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                   |                     |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To enable students to understand various types and sources of geographical data.</li> <li>2. To develop the ability to classify and process data for effective cartographic and graphical representation.</li> <li>3. To equip students with skills to visualize spatial patterns using statistical and cartographic tools.</li> <li>4. To foster analytical skills for interpreting and communicating geographic information effectively.</li> </ol> <b>Course Outcomes:</b> <p>After successful completion of the course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the types, sources, and characteristics of geographical data.</li> <li>2. Organize and process data using statistical and cartographic techniques.</li> <li>3. Represent geographical data through maps, graphs, and diagrams.</li> <li>4. Interpret spatial and temporal patterns and communicate findings effectively.</li> </ol> |                                                                                                                                                                                                                                                   |                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                   |                     |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Topics                                                                                                                                                                                                                                            | No. of Lectures: 60 |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Definition, types, and sources of geographical data, source of geographical data: primary vs. secondary data, Spatial vs. non-spatial data, Levels of data measurement: nominal, ordinal, interval, and ratio, Data classification and tabulation | 15                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Line graphs, bar graphs: Comparative and compound graphs., and histograms, Pie charts and proportional circles, Scatter diagrams and trend lines                                                                                                  | 15                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Climograph, hythergraph, climatograph, and wind roses, triangular, pyramid, rainfall dispersion diagram                                                                                                                                           | 15                  |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sampling techniques in geography: types and their characteristics.                                                                                                                                                                                | 15                  |

#### Suggested Readings:

1. Chauniyal, D. D. (2010). Remote Sensing and Geographic Information System. Sharda Pustak Bhawan, Allahabad.
2. Gupta, K. K., & Tyagi, V. C. (1992). Working with Maps. Survey of India.
3. Mahmood, A. (1977). Statistical Methods in Geographical Studies. Rajesh Publications.
4. Misra, R. P. (1999). Fundamentals of Cartography. Concept Publishing Company.
5. Monkhouse, F. J., & Wilkinson, H. R. (1971). Maps and Diagrams. Methuen.
6. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of Cartography (6th ed.). Wiley.
7. Sarkar, A. (2015). Practical Geography: A Systematic Approach. Orient BlackSwan.
8. Singh, L. R. (2014). Fundamentals of Practical Geography. Sharda Pustak Bhawan.
9. Singh, R. L., & Singh, P. B. (2002). Elements of Practical Geography. Kalyani Publishers.
10. Tiwari, R. C. (2011). Practical Geography (5th ed.). Allahabad: Prayag Pustak Bhawan.
11. Yeates, M. (1974). An Introduction to Quantitative Analysis in Human Geography. McGraw-Hill.

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## PHYSICAL GEOGRAPHY

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

|                                 |                            |
|---------------------------------|----------------------------|
| Programme: B.A./B.Sc.           | Maximum Marks : 100        |
| Course Code:                    | Theory : 75                |
| Course Name: Physical Geography | Internal Assessment : 25   |
| Theory/Practical: Theory        | • Mid-Term Exam : 20       |
| Course Type: Minor              | • Academic Activities : 05 |
| Credit: 4                       |                            |

#### Course Objectives:

1. To introduce the basic concepts, nature, and scope of physical geography.
2. To understand Earth's origin, interior, and various geomorphological processes.
3. To examine atmospheric and oceanic systems and their role in shaping Earth's environment.
4. To explore the fundamentals of biosphere, ecosystems, and their spatial distribution.

#### Course Outcomes:

After successful completion of this course, students will be able to:

1. Comprehend the origin and structure of the Earth and key concepts in physical geography.
2. Analyze various internal and external geomorphic processes that shape the Earth's surface.
3. Interpret the role of atmospheric and oceanic systems in environmental dynamics.
4. Understand the interactions between climate, soils, vegetation, and ecosystems at global and regional scales.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                         | No. of Lectures: 60 |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, nature, and scope of Physical Geography, Branches of Physical Geography, Origin of the Earth's theories: Big Bang Theory, Internal Structure of the Earth, Earth movement: endogenetic and exogenetic, Wegner's Continental drift theory, concept of plate tectonics, Weathering and mass wasting, | 15                  |
| II    | Rocks, Earthquakes and volcanoes, Landform development by fluvial, karst, coastal, aeolian, glacial and periglacial processes.                                                                                                                                                                                 | 15                  |
| III   | Structure and composition of the atmosphere, Insolation, temperature, and heat budget, Atmospheric pressure and winds, Rainfall: types and distribution, cyclone and anticyclone, climatic classification of Koppen and Thornthwaite.                                                                          | 15                  |
| IV    | Relief of the ocean basins, temperature of oceanic water, Salinity, ocean deposits, tides, ocean currents, Coral reefs. Biosphere and their components, ecology and ecosystem, Biome: types and distribution.                                                                                                  | 15                  |

#### Suggested Readings:

1. Barry, R. G., & Chorley, R. J. (2009). Atmosphere, Weather and Climate (9th ed.). Routledge.
2. Chorley, R. J., Schumm, S. A., & Sugden, D. E. (1984). Geomorphology. Methuen.
3. Critchfield, H. J. (1983). General Climatology (4th ed.). Prentice Hall of India.
4. Goudie, A. (2001). The Nature of the Environment. Blackwell Publishers.
5. Huggett, R. J. (2007). Fundamentals of Biogeography (2nd ed.). Routledge.
6. Savindra Singh. (2018). Physical Geography. Prayag Pustak Bhawan, Allahabad.
7. Strahler, A. N., & Strahler, A. H. (2005). Physical Geography: Science and Systems of the Human Environment (3rd ed.). Wiley.
8. Tikka, R. N. (2001). Physical Geography. Kedarnath Ramnath & Co.

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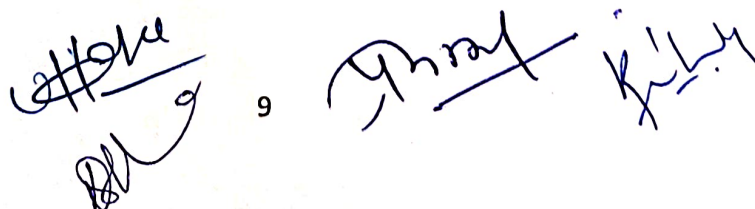
# FUNDAMENTAL OF REMOTE SENSING AND GIS

## Semester-I<sup>st</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                        | <b>Maximum Marks : 100</b><br><b>Theory : 40</b><br><b>Internal Assessment : 60</b> |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| Course Name: Fundamental of Remote Sensing and GIS                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| Course Type: Skill Enhancement Course (SEC)                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| Credit: 2                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| <b>Course Objectives:</b><br>1. To introduce the basic concepts and principles of remote sensing and GIS.<br>2. To develop an understanding of electromagnetic spectrum, image interpretation, and satellite data sources.<br>3. To equip students with knowledge of GIS data types, structure, and functions.<br>4. To explore the applications of remote sensing and GIS in geographical and environmental studies. |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| <b>Course Outcomes:</b><br>By the end of this course, students will be able to:<br>1. Explain the basic principles of remote sensing and GIS.<br>2. Understand various types of satellite sensors and data formats.<br>3. Interpret remotely sensed images and analyze spatial data using GIS tools.<br>4. Apply remote sensing and GIS techniques in environmental monitoring, resource management, and planning.    |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                        |                                                                                     |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Topics</b>                                                                                                                                                                                                                                                                                                          | <b>No. of Lectures: 30</b>                                                          |
| I                                                                                                                                                                                                                                                                                                                                                                                                                     | Definition, types and scope of remote sensing, development of remote sensing, stages in remote sensing data acquisition, Electromagnetic spectrum and energy interactions (with atmosphere and Earth surface), Platforms and sensors: types and characteristics, Resolutions: spatial, spectral, temporal, radiometric | 10                                                                                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                    | Visual image interpretation: tone, texture, pattern, shape, size, shadow, and association, ground truth data in remote sensing: instruments of ground truth data collection spectral signature of different objects.                                                                                                   | 10                                                                                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                   | Definition, components, and evolution of GIS, Spatial and non-spatial data: raster and vector models, Introduction to computers: basic operating systems, components of GIS, introduction to open-source GIS Software.                                                                                                 | 10                                                                                  |

### Suggested Readings:

1. Burrough, P. A., & McDonnell, R. A. (1998). Principles of Geographical Information Systems. Oxford University Press.
2. Campbell, J. B., & Wynne, R. H. (2011). Introduction to Remote Sensing (5th ed.). Guilford Press.
3. Chauniyal, D. D. (2010). Remote Sensing and Geographic Information System. Sharda Pustak Bhawan, Allahabad.
4. Jensen, J. R. (2006). Introductory Digital Image Processing: A Remote Sensing Perspective (3rd ed.). Pearson.
5. Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). Remote Sensing and Image Interpretation (7th ed.). Wiley.
6. Nag, P., & Kudrat, M. (1998). Digital Remote Sensing. Concept Publishing Company.



## SUSTAINABLE RESOURCE MANAGEMENT

### Semester-I<sup>st</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                           |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                           | Maximum Marks : 100<br>Theory : 100 |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                           |                                     |
| Course Name: Sustainable Resource Management                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                           |                                     |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                           |                                     |
| Course Type: Value Additional Course (VAC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                           |                                     |
| Credit: Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                           |                                     |
| <b>Course Objectives:</b><br>1. To understand the concept and principles of sustainability and sustainable resource management.<br>2. To explore the use and conservation of natural resources including land, water, forest, and energy.<br>3. To examine global and national policies and strategies for sustainable development and resource planning.<br>4. To develop an understanding of people-resource relationships and environmental ethics.                                                    |                                                                                                                                                                           |                                     |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Explain the concept of sustainability and the importance of responsible resource management.<br>2. Analyze various natural resources, their uses, overexploitation, and sustainable alternatives.<br>3. Critically evaluate national and global policies aimed at sustainable development.<br>4. Apply sustainability principles in local and regional resource planning and community engagement. |                                                                                                                                                                           |                                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                           |                                     |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Topics</b>                                                                                                                                                             | <b>No. of Lectures: 30</b>          |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Meaning, concept and approaches of resources, Classification of resource, Environment and resource relationship.                                                          | 10                                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Natural and Human resources: problems, use and misuse of resources, resource regions.                                                                                     | 10                                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Meaning and objectives of sustainable development, historical background of sustainable development. Planning and policy: sustainable development of resource management. | 10                                  |

#### Suggested Readings:

1. Adams, W. M. (2009). Green Development: Environment and Sustainability in a Developing World (3rd ed.). Routledge.
2. Bryant, E. (1997). Sustainability in the 21st Century. Oxford University Press.
3. Ghosh, A. (2013). Natural Resource Management. APH Publishing.
4. Goudie, A. (2006). The Human Impact on the Natural Environment. Blackwell Publishing.
5. Rao, K. L. (1982). India's Water Wealth. Orient Longman.
6. Singh, J. S., Singh, S. P., & Gupta, S. R. (2008). Ecology, Environment and Resource Conservation. Anamaya Publishers.
7. United Nations Environment Programme (2020). Resource Efficiency and Cleaner Production. UNEP.
8. WCED (1987). Our Common Future (The Brundtland Report). Oxford University Press.

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## GEOGRAPHY OF INDIA (PHYSICAL)

### Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                        |                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                        | <b>Maximum Marks : 100</b><br><b>Theory : 75</b><br><b>Internal Assessment : 25</b><br>• Mid-Term Exam : 20<br>• Academic Activities : 05 |
| Course Code: A110251T                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                        |                                                                                                                                           |
| Course Name: Geography of India (Physical)                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                        |                                                                                                                                           |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                        |                                                                                                                                           |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                        |                                                                                                                                           |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                        |                                                                                                                                           |
| <b>Course Objectives:</b><br>1. To provide a comprehensive understanding of the physical setting of India.<br>2. To analyze the physiographic divisions, geological structure, and their influence on landforms.<br>3. To examine climatic regions, soil types, and natural vegetation across the country.<br>4. To develop insight into the role of physical features in shaping India's geographical diversity and development.                      |                                                                                                                                                                        |                                                                                                                                           |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Identify and describe India's major physical divisions and their characteristics.<br>2. Explain geological structure, seismicity, and their geomorphological impact.<br>3. Analyze climatic conditions and their regional variations.<br>4. Interpret the distribution and characteristics of soils, vegetation, and drainage systems of India. |                                                                                                                                                                        |                                                                                                                                           |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                        |                                                                                                                                           |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Topics</b>                                                                                                                                                          | <b>No. of Lectures: 60</b>                                                                                                                |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Geological structure and evolution of the Indian subcontinent, Major physiographic divisions.                                                                          | 15                                                                                                                                        |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Characteristics and mechanisms of Indian climate, Indian monsoon: origin, mechanism, and variability, classification of climatic regions (Koeppen's and Thornthwaite). | 15                                                                                                                                        |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Major river systems, Drainage patterns and evolution, Interlinking of rivers and water resource planning, Issues of river pollution and conservation                   | 15                                                                                                                                        |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Soils: formation, types, problems and conservation methods, Natural vegetation: types, classification, and distribution, problems and conservation, biodiversity.      | 15                                                                                                                                        |

#### Suggested Readings:

1. Gautam, A. (2023). Geography of India (Revised Edition). Sharda Pustak Bhawan, Allahabad.
2. Gopal Singh. (2019). India: A Comprehensive Geography. Kalyani Publishers.
3. Majid Husain. (2020). Geography of India (8th ed.). McGraw Hill Education.
4. Raza, M., Ahmad, A., & Mohammad, A. (1990). The Physical Geography of India. Concept Publishing.
5. Savindra Singh. (2020). Bharat Ka Bhu-Roop (Hindi). Prayag Pustak Bhawan, Allahabad.
6. Sharma, T. C. (2017). Economic and Commercial Geography of India. Rawat Publications.
7. Singh, R. L. (1971). India: A Regional Geography. National Geographical Society of India, Varanasi.
8. Tikka, R. N. (2014). Physical Geography of India. Kedarnath Ramnath & Co., Meerut.
9. Tiwari, R. C. (2023). Bharat Ka Bhoogol (Geography of India) (19th ed.). Prayag Pustak Bhawan, Allahabad.
10. Valdiya, K. S. (2010). The Making of India: Geodynamic Evolution. Macmillan Publishers India.

# GEOGRAPHY OF INDIA (SOCIO-ECONOMIC)

## Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                            |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Semester-II <sup>nd</sup> (1 <sup>st</sup> Year)                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                            |                            |
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Maximum Marks : 100                                                                                                                                                                                                                                                                                                        |                            |
| Course Code: A110252T                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Theory : 75                                                                                                                                                                                                                                                                                                                |                            |
| Course Name: Geography of India (Socio-Economic)                                                                                                                                                                                                                                                                                                                                                                                                                          | Internal Assessment : 25                                                                                                                                                                                                                                                                                                   |                            |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                  | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                                       |                            |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                   | • Academic Activities : 05                                                                                                                                                                                                                                                                                                 |                            |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                            |                            |
| <b>Course Objectives:</b><br>1. To provide an understanding of India's population characteristics and settlement patterns.<br>2. To examine the spatial distribution and development of economic activities in India.<br>3. To explore the regional disparities and socio-economic challenges in India.<br>4. To assess the policies, programs, and planning strategies for balanced regional development.                                                                |                                                                                                                                                                                                                                                                                                                            |                            |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Analyze the demographic features, migration trends, and urban-rural patterns in India.<br>2. Evaluate the development and spatial distribution of agriculture, industries, and services.<br>3. Interpret the impact of economic reforms and globalization on Indian regions.<br>4. Identify regional disparities and suggest approaches for inclusive development. |                                                                                                                                                                                                                                                                                                                            |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                            |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Topics</b>                                                                                                                                                                                                                                                                                                              | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Population growth and distribution, Population composition: age, sex, literacy, and occupational structure, Population density, its regional variations and slogans like "Beti Bachao, Beti Padhao".                                                                                                                       | 15                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Types and patterns of rural settlements in India, Urbanization: trends, growth of metropolitan cities, Urban problems and planning, Smart cities and sustainable urban development.                                                                                                                                        | 15                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Indian agriculture systems and its problems sand solutions, Indian agriculture regions, Agro-climatic regions of India, Green Revolution and its impact,                                                                                                                                                                   | 15                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Energy of India: Conventional and non-conventional, Analysis of agro-based industries: sugarcane, cotton textile, jute, forest-based: paper industry, mineral-based industries: iron and steel industry, Special Economic Zones (SEZs) and regional planning models, Globalization and its socio-economic impact on India. | 15                         |

### Suggested Readings:

1. Bhatt, L. S. (1990). Population Growth and Regional Development. Meenakshi Prakashan.
2. Chandna, R. C. (2022). Regional Planning and Development. Kalyani Publishers.
3. Gautam, A. (2023). Geography of India. Sharda Pustak Bhawan, Allahabad.
4. Husain, M. (2020). Geography of India. McGraw Hill Education.
5. Planning Commission/NITI Aayog Reports, Govt. of India.
6. Sharma, T. C. (2017). Economic and Commercial Geography of India. Rawat Publications.
7. Singh, R. L. (1971). India: A Regional Geography. National Geographical Society of India, Varanasi.
8. Tiwari, R. C. (2023). Bharat Ka Bhoogol (Geography of India). Prayag Pustak Bhawan.

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## RESOURCE GEOGRAPHY

### Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

|                                 |                            |
|---------------------------------|----------------------------|
| Programme: B.A./B.Sc.           | Maximum Marks : 100        |
| Course Code: A110253T           | Theory : 75                |
| Course Name: Resource Geography | Internal Assessment : 25   |
| Theory/Practical: Theory        | • Mid-Term Exam : 20       |
| Course Type: Core/Major         | • Academic Activities : 05 |
| Credit: 3                       |                            |

#### Course Objectives:

1. To introduce students to the concept, classification, and spatial distribution of natural resources.
2. To understand the relationship between resources, population, and development.
3. To examine the exploitation, utilization, and conservation of major natural resources.
4. To analyze global and regional resource-related issues, policies, and sustainable management approaches.

#### Course Outcomes:

After successful completion of this course, students will be able to:

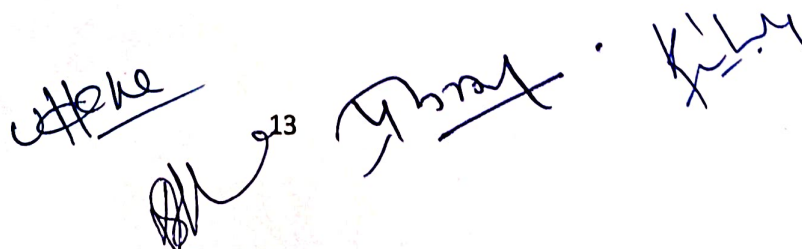
1. Understand the classification and spatial distribution of natural and human resources.
2. Analyze the role of resources in economic development and geopolitical dynamics.
3. Critically evaluate resource use, degradation, and conservation strategies.
4. Apply the concepts of sustainable development to resource management at local and global levels.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                             | No. of Lectures: 60 |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, concept, nature and scope of resource geography, approaches to resource geography, Classification of resources.                                                                        | 15                  |
| II    | Distribution, utilization, problems and management of soil resource, water resource, forest resource, minerals and energy power resources.                                                         | 15                  |
| III   | Human resources: population as a resource, Population distribution, density, factors affecting population distribution, problems and management.                                                   | 15                  |
| IV    | Resource regions of the world, Role of technology and traditional knowledge in resource conservation, sustainable development: planning and management, Resource conflicts and geopolitical issues | 15                  |

#### Suggested Readings:

1. Bryant, R. L., & Bailey, S. (1997). Third World Political Ecology. Routledge.
2. Gautam, A. (2020). Environmental Geography. Sharda Pustak Bhawan.
3. Government of India. (Various Years). Economic Survey & NITI Aayog Reports.
4. Guha, J. L., & Chattoraj, P. R. (2022). A New Approach to Resource and Environmental Geography. World Press.
5. Negi, B. S. (2002). Geography of Resources. Kedarnath Ramnath, Meerut.
6. Singh, G. (2009). Resource Geography. Sharda Pustak Bhawan, Allahabad.
7. United Nations. (2015). Transforming Our World: The 2030 Agenda for Sustainable Development.
8. Zimmermann, E. W. (1951). World Resources and Industries. Harper & Brothers.



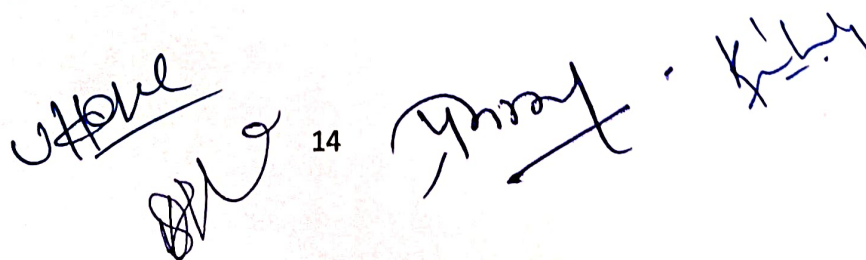
# CARTOGRAPHIC TECHNIQUES (PRACTICAL)

## Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                             | Maximum Marks : 100 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Course Code: A110254P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                             | Practical : 100     |
| Course Name: Cartographic Techniques (Practical)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                             |                     |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                             |                     |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                             |                     |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                             |                     |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To understand the principles and techniques of cartography and visualization of geographic data.</li> <li>2. To train students in the preparation, interpretation, and analysis of various types of maps.</li> <li>3. To develop technical skills for graphical representation of spatial and non-spatial data.</li> <li>4. To foster understanding of map projections, symbolization, and map design.</li> </ol> <b>Course Outcomes:</b> <p>After successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Explain the fundamentals of cartography, including types of maps and their purposes.</li> <li>2. Apply various techniques of graphical and cartographic representation of geographical data.</li> <li>3. Understand and use map projections and coordinate systems appropriately.</li> <li>4. Develop thematic and topographical maps manually and with the aid of GIS tools.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                             |                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                             |                     |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Topics                                                                                                                                                                                                                                                                                                                                                      | No. of Lectures: 60 |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Definition, nature, and scope of cartography, Scale: types and uses, Types of maps, Elements of a map.                                                                                                                                                                                                                                                      | 15                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Representation of relief features; Methods of relief representation, representation of relief features by contours, Profiles: types and methods.                                                                                                                                                                                                            | 15                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Map Projection: Concept and need for projections, Classification of projection, construction and use along with attributes and properties of Simple Conical Projection with One Standard Parallel, Simple Conical Projection with Two Standard Parallel, Bonne's Projection, Cylindrical Equal Area, Zenithal Gnomonic Polar, Zenithal Stereographic Polar. | 15                  |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Topographical map interpretation, Weather maps and climatic data representation.                                                                                                                                                                                                                                                                            | 15                  |

### Suggested Readings:

1. Cuff, D. J., & Mattson, M. T. (1982). Thematic Maps: Their Design and Production. Methuen.
2. Dent, B. D., Torguson, J. S., & Hodler, T. W. (2008). Cartography: Thematic Map Design (6th ed.). McGraw Hill.
3. Gautam, A. (2004). Advanced Cartography. Sharda Pustak Bhawan, Allahabad.
4. Monmonier, M. (1996). How to Lie with Maps. University of Chicago Press.
5. Robinson, A. H., Morrison, J. L., Muehrcke, P. C., Kimerling, A. J., & Guptill, S. C. (1995). Elements of Cartography (6th ed.). Wiley.
6. Singh, R. L., & Singh, R. P. B. (1999). Map Work and Practical Geography. Central Book Depot, Allahabad.
7. Tiwari, R. C. (2016). Prayogik Bhoogol Evam Manchitran. Prayag Pustak Bhawan, Allahabad.
8. Tyner, J. A. (2010). Principles of Map Design. Guilford Press.





## GEOGRAPHY OF INDIA

### Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

|                                 |                          |
|---------------------------------|--------------------------|
| Programme: B.A./B.Sc.           | Maximum Marks : 100      |
| Course Code:                    | Theory : 75              |
| Course Name: Geography of India | Internal Assessment : 25 |
| Theory/Practical: Theory        |                          |
| Course Type: Minor              |                          |
| Credit: 4                       |                          |

#### Course Objectives:

1. To provide comprehensive knowledge about the physical, climatic, demographic, economic, and environmental geography of India.
2. To understand spatial patterns of natural and human phenomena in the Indian context.
3. To critically examine regional disparities and development challenges.
4. To analyze the role of natural resources and socio-economic factors in shaping India's development.

#### Course Outcomes:

After successful completion of this course, students will be able to:

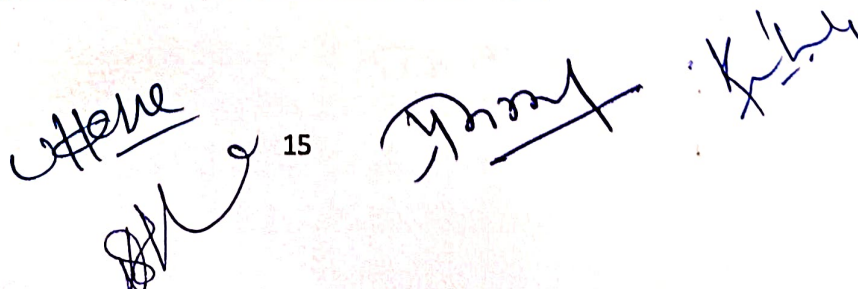
1. Understand and explain the major physical features and climate types of India.
2. Analyze demographic trends, settlement types, and human development patterns.
3. Interpret spatial distribution and regional variations in agriculture, industry, and resources.
4. Identify major regional issues, planning strategies, and environmental concerns.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                           | No. of Lectures: 60 |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Location and extent, physiographic divisions, drainage systems and river patterns, Climate and climatic regions (Koeppen's classification), Natural vegetation and soils: types, distribution, and conservation. | 15                  |
| II    | Population growth, distribution, and density, Demographic composition, Settlements: types, morphology, and hierarchy, Urbanization in India: trends, problems and solution.                                      | 15                  |
| III   | Indian agriculture systems, Agro-climatic region of India, Green Revolution, Mineral and power resources: distribution and utilization, major industries: iron & steel, textiles, sugar,                         | 15                  |
| IV    | Transport and communication: road and rail network, Trade: with special reference to India, Regional planning and development in India.                                                                          | 15                  |

#### Suggested Readings:

1. Chandna, R. C. (2022). Geography of Population: Concepts, Determinants and Patterns. Kalyani Publishers.
2. Gautam, A. (2023). Geography of India. Sharda Pustak Bhawan, Allahabad.
3. Government of India Reports: Census of India, NITI Aayog, Economic Survey
4. Husain, M. (2021). Geography of India. McGraw Hill Education.
5. Majid Husain. (2013). Indian and World Geography. Tata McGraw Hill.
6. Sharma, T. C. (2017). Economic Geography of India. Rawat Publications.
7. Singh, R. L. (1971). India: A Regional Geography. NGSI, Varanasi.
8. Tiwari, R. C. (2023). Bharat Ka Bhoogol. Prayag Pustak Bhawan, Allahabad.



# SOCIO-ECONOMIC DATA AND DIAGRAMMATIC REPRESENTATION

## Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                  |                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                  | <b>Maximum Marks : 100</b><br><b>Theory : 40</b><br><b>Internal Assessment : 60</b> |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                  |                                                                                     |
| Course Name: Socio-Economic Data and Diagrammatic Representation                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                  |                                                                                     |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                  |                                                                                     |
| Course Type: Skill Enhancement Course (SEC)                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                  |                                                                                     |
| Credit: 2                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  |                                                                                     |
| <b>Course Objectives:</b><br>1. To develop an understanding of socio-economic data sources and types.<br>2. To enable students to collect, organize, and interpret socio-economic data.<br>3. To impart knowledge of graphical and diagrammatic techniques for data representation.<br>4. To apply appropriate methods for effective communication of geographical data.                                                   |                                                                                                                                                                                                                                                                                  |                                                                                     |
| <b>Course Outcomes:</b><br>After completing this course, students will be able to:<br>1. Identify and analyze various types of socio-economic data used in geographical studies.<br>2. Collect, classify, and tabulate data from different sources.<br>3. Represent socio-economic data using appropriate diagrams and graphs.<br>4. Interpret data visually and apply these skills in academic research or field studies. |                                                                                                                                                                                                                                                                                  |                                                                                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                  |                                                                                     |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Topics</b>                                                                                                                                                                                                                                                                    | <b>No. of Lectures: 30</b>                                                          |
| I                                                                                                                                                                                                                                                                                                                                                                                                                          | Definition and Importance of Socio-Economic Data, Sources of Data, Types of Socio-Economic Data: Population and its associates, Data Collection Techniques, Classification and tabulation of data: frequency tables, class intervals, coding, measures of mean, median and mode. | 10                                                                                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                         | One-Dimensional Diagrams: Simple bar diagrams, multiple and compound bars, line graphs, Two-Dimensional Diagrams: pie diagrams, squares, rectangles.                                                                                                                             | 10                                                                                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                        | Specialized diagrams: Histograms, frequency polygons, Climographs, hythergraphs, population pyramids.                                                                                                                                                                            | 10                                                                                  |

### Suggested Readings:

1. Census of India Reports (Registrar General of India)
2. Gautam, A. (2009). Advanced Practical Geography. Sharda Pustak Bhawan, Allahabad.
3. Gopal Singh. (2014). Map Work and Practical Geography. Vikas Publishing.
4. Misra, R. P., & Ramesh, A. (1986). Fundamentals of Cartography. Concept Publishing.
5. NITI Aayog and Ministry of Statistics Reports
6. Pal, S. K. (1998). Statistics for Geoscientists. Concept Publishing
7. Singh, R. L., & Dutt, P. K. (1968). Elements of Practical Geography. Student's Friends, Allahabad.
8. Tiwari, R. C. (2022). Prayogik Bhoogol evam Manchitran. Prayag Pustak Bhawan, Allahabad.



## TOURISM GEOGRAPHY

### Semester-II<sup>nd</sup> (1<sup>st</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Maximum Marks : 100                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Theory : 100                                                                                                                                                                                                                                     |
| Course Name: Tourism Geography                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                  |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                  |
| Course Type: Value Additional Course (VAC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                  |
| Credit: Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                  |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce students to the concept and scope of tourism from a geographical perspective.</li> <li>2. To analyze the spatial patterns, types, and development of tourism.</li> <li>3. To evaluate the impact of tourism on environment, economy, and society.</li> <li>4. To understand tourism planning, sustainable tourism, and policy frameworks.</li> </ol> <b>Course Outcomes:</b> <p>After successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the fundamental concepts and classifications of tourism.</li> <li>2. Analyze the spatial distribution and regional patterns of tourism resources.</li> <li>3. Evaluate the socio-economic and environmental impacts of tourism.</li> <li>4. Apply principles of sustainable tourism planning and assess tourism potential of different regions.</li> </ol> |                                                                                                                                                                                                                                                  |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                  |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No. of Lectures: 30                                                                                                                                                                                                                              |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Concepts and definitions of tourism, Factors influencing of tourism, Types of Tourism: Domestic, Geographical Parameters of Tourism by Robinson, Historical Development of Tourism: Ancient to modern periods (with reference to India).         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Tourism Resource Regions in India: Natural, Cultural, Impact of on Economy; Environment; Society.                                                                                                                                                |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Sustainable Tourism: Concepts, strategies, and case studies: e.g., Himalaya, Desert, Coastal and Heritage Tourism, Geospatial Technologies in Tourism Planning, Tourism Planning and Policies, National Tourism Policy, State-level initiatives. |

#### Suggested Readings:

1. Bhatia, A. K. (2002). Tourism Development: Principles and Practices. Sterling Publishers.
2. GoI Reports: Ministry of Tourism, Government of India – Annual Reports and National Tourism Policies
3. Hall, C. M., & Page, S. (2014). The Geography of Tourism and Recreation: Environment, Place and Space (4th ed.). Routledge.
4. Husain, M. (2015). Bhugol Mein Paryatan. Rawat Publications.
5. Singh, S. (2009). Geography of Tourism. Rawat Publications.
6. Tiwari, R. C. (2020). Paryatan Bhoogol. Prayag Pustak Bhawan, Allahabad.
7. UNWTO Reports: World Tourism Organization publications on sustainable and global tourism trends

## AGRICULTURE GEOGRAPHY

### Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                   |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Maximum Marks : 100                                                                                                                                                               |                                |
| Course Code: A110351T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Theory : 75                                                                                                                                                                       |                                |
| Course Name: Agriculture Geography                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Internal Assessment : 25                                                                                                                                                          |                                |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | • Mid-Term Exam : 20                                                                                                                                                              |                                |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | • Academic Activities : 05                                                                                                                                                        |                                |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                   |                                |
| <b>Course Objectives:</b><br>1. To introduce students to the fundamental concepts and approaches in Agricultural Geography.<br>2. To examine the spatial patterns, processes, and determinants of agricultural activities.<br>3. To study various agricultural systems and models and their geographical relevance.<br>4. To analyze agricultural development in India and challenges in the context of sustainability and food security.                                                                                                                                             |                                                                                                                                                                                   |                                |
| <b>Course Outcomes:</b><br>After successful completion of the course, students will be able to:<br>1. Understand the scope, significance, and development of Agricultural Geography as a discipline.<br>2. Evaluate the physical, economic, and technological factors influencing agriculture.<br>3. Analyze regional patterns of cropping systems and agricultural types globally and in India.<br>4. Apply theoretical models in understanding agricultural land use and planning.<br>5. Assess agricultural development, challenges, and policies with special reference to India. |                                                                                                                                                                                   |                                |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                   |                                |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Topics</b>                                                                                                                                                                     | <b>No. of Lectures:<br/>60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Definition, Nature, Significance, Scope and Development of Agricultural Geography, Approaches to the Agricultural Geography.                                                      | 15                             |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Factors affecting of agriculture, Types of Agriculture: Subsistence, Commercial, Plantation, Intensive, Extensive, Mixed Farming, Shifting Cultivation, Organic Farming.          | 15                             |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Agricultural Regions of the World (Derwent Whittlesey's Classification), Von Thünen's Model of Agricultural Land Use, agriculture productivity, Crop intensity, crop combination. | 15                             |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Agro-climatic regions of India, Green Revolution, White Revolution, Blue Revolution, Agricultural Problems and solution in India, Agricultural Policy and Planning in India,      | 15                             |

#### Suggested Readings:

1. FAO and ICAR Reports for global and national perspectives.
2. Gautam, A. (2006). Agricultural Geography. Sharda Pustak Bhawan, Allahabad.
3. Government of India Reports: Ministry of Agriculture and Farmers Welfare, Economic Survey of India, NITI Aayog.
4. Grigg, D. (1984). Introduction to Agricultural Geography. Routledge, London.
5. Hussain, M. (2015). Agricultural Geography. Rawat Publications, Jaipur.
6. Singh, J., & Dhillon, S. S. (2000). Agricultural Geography. Tata McGraw Hill, New Delhi.
7. Symons, L. (1972). Agricultural Geography. G. Bell and Sons Ltd.
8. Tiwari, R. C. (2020). Krishi Bhoogol. Prayag Pustak Bhawan, Allahabad.



## GEOGRAPHICAL THOUGHT

### Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

|                                   |                            |
|-----------------------------------|----------------------------|
| Programme: B.A./B.Sc.             | Maximum Marks : 100        |
| Course Code: A110352T             | Theory : 75                |
| Course Name: Geographical Thought | Internal Assessment : 25   |
| Theory/Practical: Theory          | • Mid-Term Exam : 20       |
| Course Type: Core/Major           | • Academic Activities : 05 |
| Credit: 3                         |                            |

#### Course Objectives:

1. To understanding the historical and philosophical evolution of geographical thought.
2. To examine the contributions of key geographers and schools of thought that shaped the discipline.
3. To explore paradigm shifts and methodological debates in geography.
4. To develop critical thinking about the nature, scope, and relevance of geography in contemporary times

#### Course Outcomes:

After successful completion of the course, students will be able to:

1. Understand the development of geographical ideas from ancient to modern times.
2. Identify and analyze the key paradigms and philosophical approaches in geography.
3. Evaluate the contributions of major geographers and schools of thought.
4. Reflect critically on the changing nature and scope of geography as a discipline.
5. Relate theoretical perspectives to contemporary geographical issues and research.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                           | No. of Lectures: 60 |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, Nature, and Scope of Geography, Geography as a Discipline: Science, Art, or Philosophy, fundamental concept of geography: Location analysis, relationship, interrelationship, areal differentiation. | 15                  |
| II    | Geography in ancient period: contribution of Indian, Contributions of Classical Geographers: Greeks and Romans, Dark age, Geography in the Arab World, Renaissance and Age of Exploration,                       | 15                  |
| III   | Dualism, in geography: systematic versus regional and physical versus human geography, Environmental Determinism, Possibilism and Neo-Determinism.                                                               | 15                  |
| IV    | School of thoughts: German, French, British, American, Development of geography in India after independent.                                                                                                      | 15                  |

#### Suggested Readings:

1. Adhikari, S. (2009). Fundamentals of Geographical Thought. Chaitanya Publishing House, Allahabad.
2. Dikshit, R. D. (1997). Geographical Thought: A Contextual History of Ideas. Prentice Hall of India.
3. Hartshorne, R. (1939). The Nature of Geography. The Association of American Geographers.
4. Harvey, D. (1973). Explanation in Geography. Edward Arnold.
5. Husain, M. (2015). Evolution of Geographical Thought. Rawat Publications, Jaipur.
6. Johnston, R. J. (2000). The Dictionary of Human Geography. Blackwell Publishers.
7. Singh, R. L. (1979). Indian Geographers and Their Work. NGSI.

# ECONOMIC GEOGRAPHY

## Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

|                                                                                                                  |                                                                                                                                                                                                                                                                                                           |                            |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Semester-III (2 <sup>nd</sup> Year)                                                                              |                                                                                                                                                                                                                                                                                                           |                            |
| Programme: B.A./B.Sc.                                                                                            | Maximum Marks : 100                                                                                                                                                                                                                                                                                       |                            |
| Course Code: A110353T                                                                                            | Theory : 75                                                                                                                                                                                                                                                                                               |                            |
| Course Name: Economic Geography                                                                                  | Internal Assessment : 25                                                                                                                                                                                                                                                                                  |                            |
| Theory/Practical: Theory                                                                                         | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                      |                            |
| Course Type: Core/Major                                                                                          | • Academic Activities : 05                                                                                                                                                                                                                                                                                |                            |
| Credit: 3                                                                                                        |                                                                                                                                                                                                                                                                                                           |                            |
| <b>Course Objectives:</b>                                                                                        |                                                                                                                                                                                                                                                                                                           |                            |
| 1. To provide a conceptual understanding of the relationship between economic activities and geographical space. |                                                                                                                                                                                                                                                                                                           |                            |
| 2. To examine the spatial distribution of resources, production, and economic development.                       |                                                                                                                                                                                                                                                                                                           |                            |
| 3. To analyze various sectors of the economy through geographical lenses.                                        |                                                                                                                                                                                                                                                                                                           |                            |
| 4. To understand globalization, trade, and regional economic disparities in a spatial context.                   |                                                                                                                                                                                                                                                                                                           |                            |
| <b>Course Outcomes:</b>                                                                                          |                                                                                                                                                                                                                                                                                                           |                            |
| After successful completion of the course, students will be able to:                                             |                                                                                                                                                                                                                                                                                                           |                            |
| 1. Understand the scope and approaches of Economic Geography.                                                    |                                                                                                                                                                                                                                                                                                           |                            |
| 2. Analyze the spatial aspects of economic activities.                                                           |                                                                                                                                                                                                                                                                                                           |                            |
| 3. Evaluate locational theories related to agriculture, industries, and services.                                |                                                                                                                                                                                                                                                                                                           |                            |
| 4. Interpret the spatial patterns of economic development, trade, and globalization.                             |                                                                                                                                                                                                                                                                                                           |                            |
| 5. Apply geographic concepts to contemporary economic issues and regional development planning.                  |                                                                                                                                                                                                                                                                                                           |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                           |                                                                                                                                                                                                                                                                                                           |                            |
| <b>Units</b>                                                                                                     | <b>Topics</b>                                                                                                                                                                                                                                                                                             | <b>No. of Lectures: 60</b> |
| I                                                                                                                | Definition, Nature, Scope, and Significance of economic geography, Approaches to Economic Geography, Concepts and classification of Resource, Classification of Economic Activities, Factors Affecting of Economic Activities.                                                                            | 15                         |
| II                                                                                                               | Agriculture: Types, Patterns, and Distribution, Agricultural Location Theory: Von Thünen's Model, Fishing, Forestry, and Mining: Distribution and Geographical Significance, Natural Resource Distribution and Utilization: Water, Soil, Forests, and Minerals, Resource Conservation and Sustainable Use | 15                         |
| III                                                                                                              | Manufacturing Industries: Types and Locational Patterns, Industrial Location Theories: Weber and Losch, Major Industries: Iron and Steel Industry, Cotton Textile Industry, Major industrial regions of the world (USA, UK, India and Japan).                                                             | 15                         |
| IV                                                                                                               | Transportation and Communication of the world, Global Trade Patterns, Regional Disparities in Economic Development in world, Indian Economy and Regional Development Strategies.                                                                                                                          | 15                         |

### Suggested Readings:

1. Alexander, J. W. (1965). Economic Geography. Prentice Hall of India.
2. Gautam, Alka. (2014). Economic Geography. Sharda Pustak Bhawan, Allahabad.
3. Hartshorne, T. A., & Alexander, J. W. (2000). Economic Geography. PHI Learning.
4. Hudson, R. (2005). Economic Geographies: Circuits, Flows and Spaces. SAGE Publications.
5. Tiwari, R. C. (2016). Aarthik Bhoogol (Economic Geography - Hindi). Prayag Pustak Bhawan, Allahabad.
6. Wheeler, J. O., Thrall, G. I., & Muller, P. O. (1998). Economic Geography. John Wiley & Sons.

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# STATISTICAL TECHNIQUES IN GEOGRAPHY (PRACTICAL)

## Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

|                                                              |                     |
|--------------------------------------------------------------|---------------------|
| Programme: B.A./B.Sc.                                        | Maximum Marks : 100 |
| Course Code: A110354P                                        | Practical : 100     |
| Course Name: Statistical Techniques in Geography (Practical) |                     |
| Theory/Practical: Practical                                  |                     |
| Course Type: Core/Major                                      |                     |
| Credit: 3                                                    |                     |

### Course Objectives:

1. To introduce students to basic and advanced statistical methods used in geographical analysis.
2. To equip students with quantitative tools for spatial and areal data interpretation.
3. To develop skills in data collection, tabulation, analysis, and graphical representation.
4. To apply statistical techniques in solving geographical problems and research

### Course Outcomes:

After successful completion of the course, students will be able to:

1. Understand and apply descriptive and inferential statistical methods in geography.
2. Organize and represent spatial and non-spatial data graphically and statistically.
3. Use correlation, regression, and hypothesis testing in geographical research.
4. Interpret and critically evaluate quantitative data in geographical contexts.
5. Employ statistical tools in spatial analysis, planning, and decision-making.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                                          | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Meaning of statistics, Role and Importance of Statistics in Geographical Studies, Types and Sources of Data, Levels of Measurement, Frequency Distribution, Cumulative Frequency, Measures of Central Tendency: Mean, Median, Mode, Measures of Dispersion: Range, Mean Deviation, Standard Deviation, Coefficient of Variation | 15                  |
| II    | Correlation Analysis: Karl Pearson's Correlation Coefficient, Spearman's Rank Correlation, Regression Analysis.                                                                                                                                                                                                                 | 15                  |
| III   | Tabulation and Classification of Geographical Data, Bar, Line, Histogram, Frequency Polygon, Pie Diagram, Scatter Diagrams.                                                                                                                                                                                                     | 15                  |
| IV    | Thematic Mapping Techniques: Choropleth, Isopleth, Dot, and Flow Maps, Sampling Techniques.                                                                                                                                                                                                                                     | 15                  |

### Suggested Readings:

1. Alka Gautam. (2009). Statistical Techniques in Geography. Sharda Pustak Bhawan, Allahabad.
2. Gregory, S. (1978). Statistical Methods and the Geographer. Longman, London.
3. Hammond, R., & McCullagh, P. (1978). Quantitative Techniques in Geography. Oxford University Press.
4. King, L. J. (1969). Statistical Analysis in Geography. Prentice Hall.
5. Pal, S. K. (1998). Statistics for Geoscientists: Techniques and Applications. Concept Publishing, New Delhi.
6. Singh, R. L., & Singh, D. N. (1993). Elements of Practical Geography. Kalyani Publishers.
7. Tiwari, R. C. (2020). Prayogatmak Bhoogol evam Sankhyiki. Prayag Pustak Bhawan, Allahabad.
8. Yeates, M. (1974). An Introduction to Quantitative Analysis in Human Geography. McGraw Hill.

# ENVIRONMENTAL GEOGRAPHY

## Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

|                                      |                          |
|--------------------------------------|--------------------------|
| Programme: B.A./B.Sc.                | Maximum Marks : 100      |
| Course Code:                         | Theory : 75              |
| Course Name: Environmental Geography | Internal Assessment : 25 |
| Theory/Practical: Theory             |                          |
| Course Type: Minor                   |                          |
| Credit: 4                            |                          |

### Course Objectives:

1. To provide foundational knowledge of the interrelationship between environment and human activities.
2. To understand environmental systems, processes, and their spatial distribution.
3. To examine environmental degradation, pollution, and sustainable development practices.
4. To build awareness and analytical skills for addressing contemporary environmental issues

### Course Outcomes:

By the end of this course, students will be able to:

1. Understand the concepts, components, and significance of the environment in geography.
2. Analyze the interaction between physical and human environments across scales.
3. Identify and assess environmental problems and their spatial dimensions.
4. Evaluate environmental management approaches and policies.
5. Apply geographic knowledge in promoting environmental sustainability and conservation.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                             | No. of Lectures: 60 |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, Nature, and Scope of Environmental Geography, Components of Environment, Biosphere, Man-Environment Relationship: Determinism, Possibilism, Neo-Determinism, Ecology and Ecosystem: Concept, Structure, Functions, Energy Flow, Biogeochemical Cycles. | 15                  |
| II    | Types and Causes of Environmental Degradation, Air Pollution, Water Pollution, Soil and Land Degradation, Noise and Radiation Pollution.                                                                                                                           | 15                  |
| III   | Environmental Hazards and Disasters: Types and Geographical Impact, Sustainable Development.                                                                                                                                                                       | 15                  |
| IV    | Environmental Movements in India: Chipko, Narmada Bachao, Silent Valley, Environmental Programmes and Policies, Climate Change and Global Warming: Causes, Impacts, and Mitigation.                                                                                | 15                  |

### Suggested Readings:

1. Agarwal, S.K. (2002). Environmental Issues and Themes. APH Publishing.
2. Cunningham, W. P., & Cunningham, M. A. (2008). Principles of Environmental Science. McGraw Hill.
3. Cutter, S. L. (1995). Environmental Risks and Hazards. Prentice Hall.
4. Kumar, A. (2009). Environmental Geography. Sharda Pustak Bhawan, Allahabad.
5. Majid Husain. (2018). Environment and Ecology: Biodiversity, Climate Change and Disaster Management. McGraw Hill.
6. R.C. Tiwari. (2010). Paryavaran Bhoogol (Environmental Geography). Prayag Pustak Bhawan.
7. Savindra Singh. (2006). Environmental Geography. Prayag Pustak Bhawan, Allahabad.



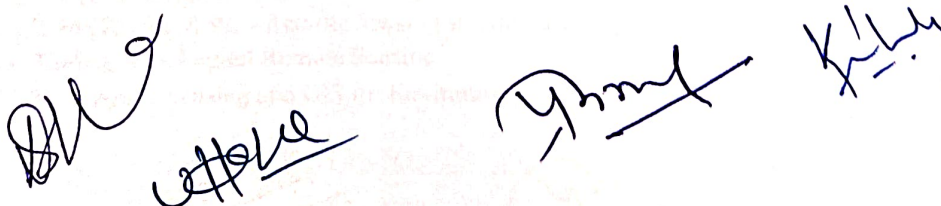
## REPRESENTATION OF GEOGRAPHICAL DATA

### Semester-III<sup>rd</sup> (2<sup>nd</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Maximum Marks : 100                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Theory : 40                                                                                                                                                                                          |
| Course Name: Representation of Geographical Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Internal Assessment : 60                                                                                                                                                                             |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                      |
| Course Type: Skill Enhancement Course (SEC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |
| Credit: 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                      |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce students to various techniques of data representation in geography.</li> <li>2. To develop the ability to organize, interpret, and present geographical data effectively.</li> <li>3. To familiarize students with graphical, statistical, and cartographic methods.</li> <li>4. To build analytical skills for spatial and non-spatial data interpretation.</li> </ol> <b>Course Outcomes:</b> <p>After completing this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand different types and sources of geographical data.</li> <li>2. Represent spatial and statistical data using appropriate graphical and cartographic techniques.</li> <li>3. Analyze patterns and relationships using visual methods.</li> <li>4. Apply suitable methods for thematic mapping and diagrammatic representation in geographic studies.</li> </ol> |                                                                                                                                                                                                      |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                      |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Topics                                                                                                                                                                                               |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Types and Sources of Geographical Data, Classification and Tabulation of Data, Statistical Diagrams: Line Graphs, Bar Graphs (Simple, Multiple, Compound), Pie Charts, Histogram, Frequency Polygon. |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Scatter Diagram, Population Pyramid, Star Diagram.                                                                                                                                                   |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Dot Maps, Choropleth, Isopleth, Choro-schematic, Flow Maps.                                                                                                                                          |

#### Suggested Readings:

1. Alka Gautam. Practical Geography. Sharda Pustak Bhawan, Allahabad
2. Gopal Singh. Map Work and Practical Geography.
3. Misra, R.P. & Ramesh, A. Fundamentals of Cartography.
4. Monkhouse, F.J., & Wilkinson, H.R. Maps and Diagrams.
5. Singh, R.L. & Dutt, P.K. Elements of Practical Geography.
6. Tiwari, R.C. Prayogatmak Bhoogol Evam Sankhyiki. Prayag Pustak Bhawan, Allahabad.



# FUNDAMENTAL OF REMOTE SENSING AND GIS

## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Maximum Marks : 100                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code: A110451T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Theory : 75                                                                                                                                                                                                                                                                                                              |
| Course Name: Fundamental of Remote Sensing and GIS                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Internal Assessment : 25                                                                                                                                                                                                                                                                                                 |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                                     |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • Academic Activities : 05                                                                                                                                                                                                                                                                                               |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                          |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. Introduce the fundamental concepts and principles of remote sensing and GIS.</li> <li>2. Explain the nature of electromagnetic radiation and its interaction with Earth's surface.</li> <li>3. Provide knowledge about satellite sensors, aerial imagery, and data acquisition techniques.</li> <li>4. Develop basic skills in spatial data handling, map making, and real-world applications using GIS tools</li> </ol>           |                                                                                                                                                                                                                                                                                                                          |
| <b>Course Outcomes:</b><br>After completing the course, students will be able to: <ol style="list-style-type: none"> <li>1. Understand and explain the core concepts of remote sensing and GIS.</li> <li>2. Interpret aerial and satellite images using visual and digital techniques.</li> <li>3. Perform basic GIS operations such as georeferencing, digitization, and spatial analysis.</li> <li>4. Apply RS and GIS techniques in various fields like agriculture, urban planning etc.</li> </ol> |                                                                                                                                                                                                                                                                                                                          |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                          |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | No. of Lectures: 60                                                                                                                                                                                                                                                                                                      |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Meaning, Definition and Scope of Remote Sensing, Historical Development of Remote Sensing, Electromagnetic Radiation (EMR): Nature, Sources and Interaction with Atmosphere and Earth Surface, Types of Remote Sensing, Types of Remotes Sensing Platforms                                                               |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Classification and Types of Aerial Photographs, Elements of Image Interpretation, Principles of Photogrammetry: Scale, Relief Displacement, Parallax, Satellite Sensors and Resolution, Major Indian and International Satellites: IRS, Landsat, SPOT, Sentinel, Introduction to Visual and Digital Image Interpretation |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Definition and Scope of GIS, Components of GIS, Types of Data: Spatial and Attribute, Data Models: Raster and Vector, Map Projection and Coordinate System, Global Positioning System (GPS) and GNSS: Concept and Application                                                                                            |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Use of Remote Sensing and GIS: Agriculture and Soil Studies, Urban and Regional Planning, Forestry and Wildlife, Disaster Management, Water Resources and Environmental Management.                                                                                                                                      |

### Suggested Readings:

1. Burrough, P.A., McDonnell, R.A. – Principles of Geographical Information Systems
2. Gautam, N.C. – Remote Sensing and GIS Applications in Resource Management
3. Heywood, I., Cornelius, S., Carver, S. – An Introduction to Geographical Information Systems
4. Jensen, J.R. – Introductory Digital Image Processing
5. Joseph, G. – Fundamentals of Remote Sensing
6. Lillesand, T.M., Kiefer, R.W. – Remote Sensing and Image Interpretation
7. Nag, P. & Kudrat, M. – Digital Remote Sensing
8. Singh, R.B. – Remote Sensing and GIS for Environmental Planning



# REGIONAL GEOGRAPHY OF SOUTHEAST ASIA

## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

|                                                   |                            |
|---------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                             | Maximum Marks : 100        |
| Course Code: A110452T                             | Theory : 75                |
| Course Name: Regional Geography of Southeast Asia | Internal Assessment : 25   |
| Theory/Practical: Theory                          | • Mid-Term Exam : 20       |
| Course Type: Core/Major                           | • Academic Activities : 05 |
| Credit: 3                                         |                            |

### Course Objectives:

1. To develop an understanding of the physical, cultural, and economic diversity of Southeast Asia.
2. To analyze spatial patterns of population, settlement, and economic development in the region.
3. To examine contemporary environmental, social, and geopolitical issues in Southeast Asia.
4. To foster critical appreciation of regional cooperation and the role of ASEAN in shaping the region.

### Course Outcomes:

After successful completion of this course, students will be able to:

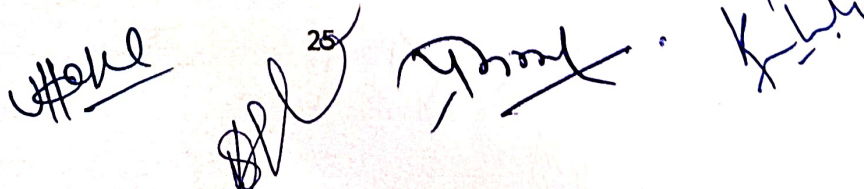
1. Students will gain comprehensive knowledge of the physical and human geography of Southeast Asia.
2. Students will be able to analyze population dynamics, urbanization trends, and cultural diversity in the region.
3. Students will evaluate the region's economic structures, resource distribution, and environmental challenges.
4. Students will understand the significance of ASEAN and the geopolitical context of Southeast Asia in global affairs.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                           | No. of Lectures: 60 |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Significance of Southeast Asia as a Region, Location, Extent, and Political Divisions, Physical Features: Major Landforms, Islands, Mountains, and Rivers, Geology and Natural Hazards (Earthquakes, Volcanoes, Tsunamis)                                                                                        | 12                  |
| II    | Climatic Patterns and Types (Monsoon, Equatorial, Tropical Climate), Natural Vegetation and Wildlife, Major Natural Resources: Minerals, Forests, Fisheries, Water Resources and River Systems, Environmental Issues: Deforestation, Urbanization, Climate Change, Biodiversity Loss                             | 12                  |
| III   | Population Distribution, Growth, and Density Patterns, Ethnic and Cultural Diversity, Urbanization and Major Cities, Migration Trends and Transnational Communities, Human Development and Quality of Life Indicators                                                                                            | 12                  |
| IV    | Agriculture and Food Systems (Rice, Plantation Crops, Fisheries), Industrial Development and SEZs (Special Economic Zones), Major Tourist Destinations, Transport and Communication Networks, Trade, Regional Economic Integration (ASEAN), and Globalization                                                    | 12                  |
| V     | Geopolitical Significance of Southeast Asia, Maritime Boundaries and South China Sea Disputes, Environmental Cooperation and Sustainability Efforts, Urban Growth and Smart Cities Initiatives, Role of ASEAN and Other Regional Organizations, Case Studies: Thailand, Malaysia, Indonesia, Singapore, Myanmar. | 12                  |

### Suggested Readings:

1. Acharya, Amitav — Constructing a Security Community in Southeast Asia
2. Ginsburg, Norton — Southeast Asia: A Regional Geography
3. Journals and Reports from ASEAN, UNDP, World Bank, ADB, ESCAP
4. McGee, T.G. — The Southeast Asian City
5. Richardson, J. — Southeast Asia: The Human Landscape of Modernization and Development
6. Robequain, Charles — The Economic Development of French Indo-China





# ENVIRONMENTAL GEOGRAPHY

## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

|                                      |                            |
|--------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                | Maximum Marks : 100        |
| Course Code: A110543T                | Theory : 75                |
| Course Name: Environmental Geography | Internal Assessment : 25   |
| Theory/Practical: Theory             | • Mid-Term Exam : 20       |
| Course Type: Core/Major              | • Academic Activities : 05 |
| Credit: 3                            |                            |

### Course Objectives:

1. To provide foundational knowledge of the interrelationship between environment and human activities.
2. To understand environmental systems, processes, and their spatial distribution.
3. To examine environmental degradation, pollution, and sustainable development practices.
4. To build awareness and analytical skills for addressing contemporary environmental issues

### Course Outcomes:

By the end of this course, students will be able to:

1. Understand the concepts, components, and significance of the environment in geography.
2. Analyze the interaction between physical and human environments across scales.
3. Identify and assess environmental problems and their spatial dimensions.
4. Evaluate environmental management approaches and policies.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                          | No. of Lectures: 60 |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, Nature, and Scope of Environmental Geography, Components of Environment, Human-Environment Relationship: Determinism, Possibilism, Neo-Determinism, Ecology and Ecosystem: Concept, Structure, Functions, Energy Flow, Biogeochemical Cycles: Carbon, Nitrogen, Water.                              | 15                  |
| II    | Types and Causes of Environmental Degradation, Air Pollution (Ek Ped Maa Ke Naam), Water Pollution, Soil and Land Degradation, Noise and Radiation Pollution.                                                                                                                                                   | 15                  |
| III   | Environmental Hazards and Disasters: Types and Geographical Impact, Disaster Management, Flood, Drought, Cyclone, Earthquake, Tsunami, Landslide, Chemical and Nuclear Disasters, Environmental Movements in India: Chipko, Narmada Bachao, Silent Valley, Environmental Impact Assessment (EIA).               | 15                  |
| IV    | Environmental Policies and Programmes (Global and Local level): EPA (1986), Forest Act, Water Act (in India), Rio Earth Summit, Kyoto Protocol, Paris Agreement, Climate Change and Global Warming: Causes, Impacts, and Mitigation, Ozone Layer Depletion, Acid Rain, and E-waste, Environmental Conservation. | 15                  |

### Suggested Readings:

1. Agarwal, S.K. (2002). Environmental Issues and Themes. APH Publishing.
2. Cunningham, W. P., & Cunningham, M. A. (2008). Principles of Environmental Science. McGraw Hill.
3. Cutter, S. L. (1995). Environmental Risks and Hazards. Prentice Hall.
4. Kumar, A. (2009). Environmental Geography. Sharda Pustak Bhawan, Allahabad.
5. Majid Husain. (2018). Environment and Ecology: Biodiversity, Climate Change and Disaster Management. McGraw Hill.
6. R.C. Tiwari. (2010). Paryavaran Bhoogol (Environmental Geography). Prayag Pustak Bhawan.
7. Savindra Singh. (2006). Environmental Geography. Prayag Pustak Bhawan, Allahabad.
8. Semple, Ellen Churchill. Influences of Geographic Environment: On the Basis of Ratzel's System of



# FUNDAMENTAL OF REMOTE SENSING AND GIS (PRACTICAL)

## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                              | Maximum Marks : 100 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Course Code: A110454P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                              | Practical : 100     |
| Course Name: Fundamental of Remote Sensing and GIS (Practical)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                              |                     |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                              |                     |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                              |                     |
| Credit: 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                              |                     |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To develop practical skills in interpreting aerial photographs and satellite imagery.</li> <li>2. To train students in the use of GIS software for spatial data input, management, and visualization.</li> <li>3. To introduce georeferencing, digitization, and basic map-making techniques.</li> <li>4. To enable students to conduct simple spatial analysis and field data collection using GPS.</li> </ol> <b>Course Outcomes:</b> <p>After completing the practical course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Interpret land features and patterns using aerial photographs and satellite images.</li> <li>2. Perform basic operations in GIS such as adding layers, digitizing, and handling attribute data.</li> <li>3. Apply georeferencing and create thematic maps using GIS tools.</li> <li>4. Collect field data using GPS and integrate it into GIS for basic spatial analysis.</li> </ol> |                                                                                                                                                                                                                                                                              |                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |                     |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Topics                                                                                                                                                                                                                                                                       | No. of Lectures: 60 |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Identification of land features on topographic maps, Visual interpretation of aerial photographs and satellite images, Elements of image interpretation, Preparation of land use/land cover maps from satellite imagery, LULC and Change Detection.                          | 15                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Introduction to GIS software (QGIS/ArcGIS/Erda Imagine), Understanding GIS interface and tools, Adding and displaying raster and vector data, Creating and editing shapefiles (point, line, and polygon), Data attribute entry and table management                          | 15                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Georeferencing of toposheets and satellite imagery, On-screen digitization of point, line, and polygon features, Attribute data entry and table management, Creation of thematic layers: land use, water bodies, roads, settlements, etc.                                    | 15                  |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Measurement of distance and area in GIS Environment, Buffer analysis and overlay analysis, Preparation of thematic maps: land use/land cover, drainage, settlement pattern, Map composition: legend, north arrow, scale, layout design, Exporting maps and report generation | 15                  |

### Suggested Readings:

1. Burrough, P.A., & McDonnell, R.A. Principles of Geographical Information Systems. Oxford University Press.
2. Campbell, J.B., & Wynne, R.H. Introduction to Remote Sensing. Guilford Press.
3. Chauniyal, D.D. Remote Sensing and Geographic Information System.
4. Joseph, G. – Fundamentals of Remote Sensing
5. Lillesand, T.M., Kiefer, R.W., & Chipman, J. Remote Sensing and Image Interpretation. Wiley.
6. QGIS Documentation (<https://docs.qgis.org>) – For practical tutorials and open-source tool support.

# REGIONAL PLANNING AND DEVELOPMENT

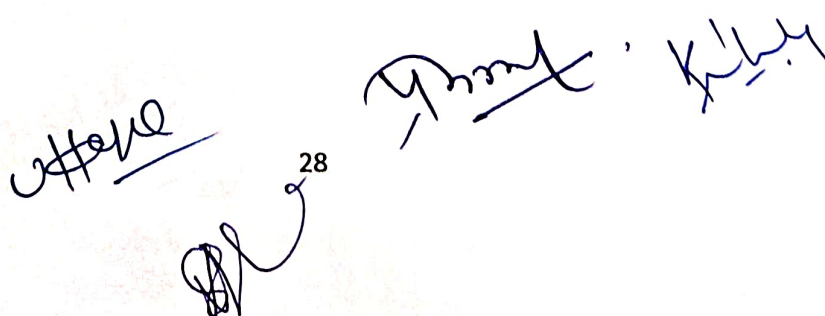
## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Maximum Marks : 100                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Theory : 75                                                                                                                                                                                                                 |
| Course Name: Regional Planning and Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Internal Assessment : 25                                                                                                                                                                                                    |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | • Mid-Term Exam : 20                                                                                                                                                                                                        |
| Course Type: Minor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | • Academic Activities : 05                                                                                                                                                                                                  |
| Credit: 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce the theoretical foundations and conceptual framework of regional planning.</li> <li>2. To familiarize students with models and strategies of regional development.</li> <li>3. To analyze regional disparities and planning processes in India.</li> <li>4. To equip students with skills to evaluate regional policies and sustainable development frameworks.</li> </ol>                                                                |                                                                                                                                                                                                                             |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to: <ol style="list-style-type: none"> <li>1. Explain the concept, scope, and evolution of regional planning and development.</li> <li>2. Analyze spatial disparities, development indicators, and regional issues.</li> <li>3. Apply theoretical models and planning techniques in the context of Indian regions.</li> <li>4. Evaluate regional policies and approaches for sustainable and balanced development.</li> </ol> |                                                                                                                                                                                                                             |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No. of Lectures: 60                                                                                                                                                                                                         |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Definition, Nature, and Scope of Regional Planning, Approaches of Regional Planning, Need and Importance of Regional Planning in Developing Countries. Concept of regional planning.                                        |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Concept of Region: Types, Delineation of Regions, Regional Hierarchy.                                                                                                                                                       |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Causes and Consequences of Regional Imbalances in India, Five-Year Plans and Regional Development Policies in India, Multi-level planning,                                                                                  |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Special Area Development Programmes:, Hill Area Development (Himalaya Region), River Valley Development Plan (Damodar Valley Corporation) Tribal Area Development Plan (Baster District), Metropolitan Regional Plan (NCR), |

### Suggested Readings:

1. Chand, M., & Puri, V.K. Regional Planning in India.
2. Glasson, J. An Introduction to Regional Planning.
3. Gore, C.D. Regions in Question: Space, Development Theory and Regional Policy.
4. Mishra, R.P. Regional Planning: Concepts, Techniques and Policies.
5. Planning Commission & NITI Aayog Reports (Govt. of India).
6. Singh, R.L. (ed.) India: A Regional Geography.
7. Tiwari, R.C. Pariyojana evam Kshetriya Niyojan. Prayag Pustak Bhawan.
8. UNDP Reports on regional disparities and sustainable development.

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## BASIC CARTOGRAPHIC TECHNIQUES

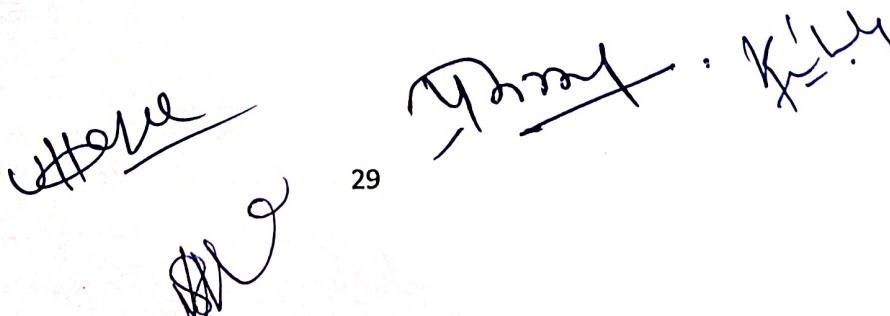
### Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                           |                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                           | <b>Maximum Marks : 100</b><br><b>Theory : 40</b><br><b>Internal Assessment : 60</b> |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                           |                                                                                     |
| Course Name: Basic Cartographic Techniques                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                           |                                                                                     |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                           |                                                                                     |
| Course Type: Skill Enhancement Course (SEC)                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                           |                                                                                     |
| Credit: 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                           |                                                                                     |
| <b>Course Objectives:</b><br>1. To introduce the fundamentals of cartography as a tool for geographical analysis and representation.<br>2. To familiarize students with essential techniques of map-making and symbolization.<br>3. To enhance students' skills in visualizing spatial data using various cartographic methods.<br>4. To provide practical knowledge for interpreting and preparing maps manually and digitally.                                                  |                                                                                                                                                                                                                           |                                                                                     |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Understand the principles, scope, and importance of cartography in geography.<br>2. Identify and use various types of maps, scales, and projections.<br>3. Construct basic maps and apply standard cartographic techniques such as symbolization, shading, and labeling.<br>4. Analyze spatial data and represent it effectively through graphical and cartographic tools. |                                                                                                                                                                                                                           |                                                                                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                           |                                                                                     |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Topics</b>                                                                                                                                                                                                             | <b>No. of Lectures: 30</b>                                                          |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Definition, Scope, and Significance of Cartography, Classification of Maps and use, Basic Elements of a Map.                                                                                                              | 10                                                                                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Map Scale: Types and Conversion, Plain Scale Diagonal Scale, Map Projections: Meaning, purpose, characteristics, classification and use, Representation of Relief, Use of Conventional Signs and Symbols, Weather Symbols | 10                                                                                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Cartographic Representation of Data: Dot Map, Choropleth, Isopleth, Choroschematic map, Flow map.                                                                                                                         | 10                                                                                  |

#### Suggested Readings:

1. Kumar, S. Fundamentals of Cartography.
2. Monkhouse, F.J., & Wilkinson, H.R. Maps and Diagrams.
3. Rana, T.S. Cartography: Principles and Practice.
4. Robinson, A.H. et al. Elements of Cartography.
5. Singh, R.L. & Singh, R.P.B. Elements of Practical Geography.
6. Tiwari, R.C. Prayogik Bhoogol (Hindi), Prayag Pustak Bhawan.
7. Tyner, J.A. Principles of Map Design.

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# BASIC CONCEPT OF SETTLEMENT GEOGRAPHY

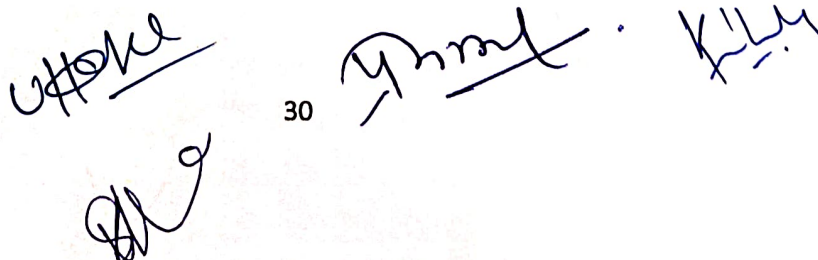
## Semester-IV<sup>th</sup> (2<sup>nd</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Maximum Marks : 100                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Theory : 100                                                                                                                                                                                                                    |
| Course Name: Basic Concept of Settlement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                 |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                 |
| Course Type: Value Additional Course (VAC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                 |
| Credit: Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                 |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce students to the foundational concepts of settlement geography.</li> <li>2. To understand the evolution, classification, and distribution of human settlements.</li> <li>3. To examine the factors influencing the formation and morphology of rural and urban settlements.</li> <li>4. To provide a base for analyzing spatial patterns and functional characteristics of settlements.</li> </ol>                                                         |                                                                                                                                                                                                                                 |
| <b>Course Outcomes:</b><br>After completing this course, students will be able to: <ol style="list-style-type: none"> <li>1. Define settlement geography and explain its scope and significance.</li> <li>2. Differentiate between types and forms of rural and urban settlements.</li> <li>3. Analyze the role of environmental, economic, and social factors in the location and distribution of settlements.</li> <li>4. Apply key geographical theories to interpret the spatial organization and functions of settlements.</li> </ol> |                                                                                                                                                                                                                                 |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                 |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No. of Lectures: 30                                                                                                                                                                                                             |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Definition, Nature, and Scope of Settlement Geography, Approaches to settlement geography, Site & Situation of Rural Settlement, Types and patterns of Rural Settlements, Classification of rural settlements.                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Factors Influencing of Settlement, Types and patterns of Urban Settlements, Morphology of Urban Settlements, Functional classification of cities. Settlement hierarchy and service centre, Central Place theory of Christaller. |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Contemporary issues in settlements, Planning and policy of settlements.                                                                                                                                                         |

### Suggested Readings:

1. Chandna, R.C. Population and Settlement Geography.
2. Hudson, F.S. Geography of Settlements.
3. Husain, Majid. Human Geography.
4. Misra, H.N. Rural Geography.
5. Pacione, M. Urban Geography: A Global Perspective.
6. Singh, R.L. Readings in Rural Settlement Geography.
7. Tiwari, R.C. Manav Bhoogol. Prayag Pustak Bhawan, Allahabad.

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## DISASTER MANAGEMENT

### Semester-V<sup>th</sup> (3<sup>rd</sup> Year)

|                                  |                            |
|----------------------------------|----------------------------|
| Programme: B.A./B.Sc.            | Maximum Marks : 100        |
| Course Code: A110551T            | Theory : 75                |
| Course Name: Disaster Management | Internal Assessment : 25   |
| Theory/Practical: Theory         | • Mid-Term Exam : 20       |
| Course Type: Core/Major          | • Academic Activities : 05 |
| Credit: 6                        |                            |

#### Course Objectives:

1. To introduce students to the basic concepts, classification, and phases of disaster management.
2. To develop an understanding of natural and human-induced disasters and their geographic implications.
3. To examine institutional frameworks, mitigation strategies, and policy mechanisms.
4. To empower students with planning and decision-making skills for disaster preparedness and response.

#### Course Outcomes:

After completing this course, students will be able to:

1. Understand and classify various types of disasters, their causes, and impacts.
2. Analyze the spatial distribution of disasters using geographical tools and techniques.
3. Evaluate disaster risk reduction strategies and institutional frameworks at national and international levels.
4. Apply disaster management principles to real-world case studies for preparedness, mitigation, and recovery.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                              | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, Nature and Scope of Disaster, Basic concept of Hazards, Disasters, Risks, and Vulnerability, Classification of Disasters.                                                                                                                               | 15                  |
| II    | Earthquakes and Tsunamis: Causes, Distribution, Impact, Mitigation, Floods and Droughts: Causes, Impact, and Management in India, Cyclones and Landslides: Characteristics, Mapping, and Management Strategies.                                                     | 15                  |
| III   | Industrial and Chemical Disasters (e.g., Bhopal Gas Tragedy), Chernobyl Nuclear Hazards, Fukushima hazards, Pandemics (COVID-19).                                                                                                                                   | 15                  |
| IV    | Disaster Management: Role and function of NDMA, NIDM, Indigenous Knowledge and Community-Based Disaster Management (CBDM), Phases of Disaster Management: Prevention, Preparedness, Response, Recovery, National and International Policies of Disaster Management. | 15                  |

#### Suggested Readings:

1. Coppola, D.P. (2015). Introduction to International Disaster Management. Butterworth-Heinemann.
2. Government of India. Disaster Management Act 2005 and Reports from NDMA and NIDM.
3. Kapoor, M. (2009). Disaster Management. ICFAI University Press.
4. Sharma, V.K. (Ed.). Disaster Management. NCDM, IIPA, New Delhi.
5. Singh, R.B. (Ed.). Natural Hazards and Disaster Management: Vulnerability and Mitigation. Rawat Publications.
6. Tiwari, R.C. Bhautik Bhoogol Evam Aapda Prabandhan (Hindi). Prayag Pustak Bhawan, Allahabad.

**SURVEYING AND SURVEY (PRACTICAL)**  
**Semester-V<sup>th</sup> (3<sup>rd</sup> Year)**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            | Maximum Marks : 100<br>Practical : 75 |
| Course Code: A110552P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |                                       |
| Course Name: Survey and Surveying in Geography (Practical)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                            |                                       |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |                                       |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                            |                                       |
| Credit: 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                            |                                       |
| <b>Course Objectives:</b><br><ol style="list-style-type: none"><li>1. To introduce the fundamental principles and techniques of surveying in geographical studies.</li><li>2. To develop practical skills in using various traditional and modern surveying instruments.</li><li>3. To enable students to conduct field surveys, take accurate measurements, and prepare maps and plans.</li><li>4. To integrate surveying knowledge with spatial data collection for geographical analysis.</li></ol>                                                                                                                                              |                                                                                                            |                                       |
| <b>Course Outcomes:</b><br>After completion of this course, students will be able to:<br><ol style="list-style-type: none"><li>1. Understand the basic concepts and significance of surveying in geographical fieldwork.</li><li>2. Demonstrate proficiency in handling traditional instruments like chain, compass, plane table, and level.</li><li>3. Apply surveying methods to measure distances, angles, and elevations in field settings.</li><li>4. Prepare and interpret field-based maps, plans, and cross-sections for geographical analysis.</li><li>5. Conduct small-scale surveys and apply data in spatial decision-making.</li></ol> |                                                                                                            |                                       |
| Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                            |                                       |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Topics                                                                                                     | No. of Lectures: 60                   |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Meaning, Nature, and Method of Surveying, Types of Surveying, Classification and Functions of Surveying.   | 15                                    |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Chain and Tape Surveying, Plane Table Surveying: Radiation, Intersection, Resection (Three-Point Problem). | 15                                    |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Prismatic Compass Surveying.                                                                               | 15                                    |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Indian Clinometer and Dumpy Level Surveying.                                                               | 15                                    |

**Suggested Readings:**

1. Kanetkar, T.P. & Kulkarni, S.V. Surveying and Levelling (Vol. I & II). Pune Vidyarthi Griha Prakashan.
2. Misra, R.P. Fundamentals of Cartography.
3. Punmia, B.C. Surveying (Vol. I, II, III). Laxmi Publications.
4. Roy, S.K. Fundamentals of Surveying. PHI Learning.
5. Singh, R.L. & Singh, R.P.B. Elements of Practical Geography. Kalyani Publishers.
6. Tiwari, R.C. Prayogik Bhoogol. Prayag Pustak Bhawan, Allahabad.



## HUMAN GEOGRAPHY

### Semester-V<sup>th</sup> (3<sup>rd</sup> Year)

|                              |                            |
|------------------------------|----------------------------|
| Programme: B.A./B.Sc.        | Maximum Marks : 100        |
| Course Code:                 | Theory : 75                |
| Course Name: Human Geography | Internal Assessment : 25   |
| Theory/Practical: Theory     | • Mid-Term Exam : 20       |
| Course Type: Minor           | • Academic Activities : 05 |
| Credit: 4                    |                            |

#### Course Objectives:

1. To provide a conceptual understanding of the relationship between humans and their environments.
2. To examine the development of human geography as a discipline and its core themes.
3. To explore the spatial patterns of population, culture, economy, and human settlements.
4. To analyze the interaction between society and space from a geographical perspective.

#### Course Outcomes:

After completing this course, students will be able to:

1. Define and explain the scope, approaches, and evolution of human geography.
2. Understand the patterns and processes of population growth, migration, and demographic transition.
3. Analyze the spatial aspects of culture, economy, and human settlements.
4. Critically examine human-environment interactions and spatial organization.
5. Apply human geographical concepts to real-world social and environmental issues.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                             | No. of Lectures: 60 |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Meaning, Nature, and Scope of Human Geography, Approaches to the Human Geography, Man-Environment Relationship: Traditional and Modern Perspectives, Human Geography related to other disciplines. | 15                  |
| II    | Principles of human geography, Concept of Environmental Determinism, Possibilism, Neo-determinism, Probabilism.                                                                                    | 15                  |
| III   | Economic Activities, Primitive Economies: Food Gathering, Hunting, Pastoral Herding, Fishing, Lumbering and Primitive Agriculture.                                                                 | 15                  |
| IV    | Classification of human races by Taylor, Primitive People, Eskimos, Bushman, Pygmy, Bhutia, Tharu (India).                                                                                         | 15                  |

#### Suggested Readings:

1. Cloke, P., Crang, P., & Goodwin, M. Introducing Human Geographies. Routledge.
2. Fellmann, Getis & Getis. Human Geography: Landscapes of Human Activities. McGraw Hill.
3. Huntington, Ellsworth, and C.H. Cushing. 1924. Principles of Human Geography. New York: Wiley & Sons.
4. Kaushik, S.D. Manav Bhugol (Hindi). Rastogi Publications.
5. Knox, P. & Marston, S. Places and Regions in Global Context: Human Geography.
6. Majid Husain. Human Geography. McGraw Hill Education.
7. Singh, R.L. Man and His Environment.

## STATISTICAL TECHNIQUES IN GEOGRAPHY

### Semester-V<sup>th</sup> (3<sup>rd</sup> Year)

|                                                  |                          |
|--------------------------------------------------|--------------------------|
| Programme: B.A./B.Sc.                            | Maximum Marks : 100      |
| Course Code:                                     | Theory : 75              |
| Course Name: Statistical Techniques in Geography | Internal Assessment : 25 |
| Theory/Practical: Theory                         | Mid-Term Exam : 20       |
| Course Type: Minor                               | Academic Activities : 05 |
| Credit: 4                                        |                          |

#### Course Objectives:

1. To introduce the basic concepts and importance of statistical methods in geographical studies.
2. To develop the ability to collect, classify, tabulate, and graphically present geographical data.
3. To train students in using descriptive and inferential statistical techniques for analyzing spatial patterns.
4. To provide hands-on experience in applying statistical tools in geographic research and field-based studies.

#### Course Outcomes:

After successful completion of this course, students will be able to:

1. Explain the relevance and scope of statistics in geographical analysis.
2. Applying correlation and regression techniques to examine relationships between variables in geography.
3. Use appropriate statistical and visual tools for effective communication of geographic information.
4. Integrate statistical reasoning in the analysis of patterns, trends, and relationships in geography.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                              | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Nature and Importance of Statistics in Geographical Study, Types of data (Nominal, ordinal, interval, ratio), Data Collection Methods, Classification and Tabulation of Data, Frequency distribution and graphical representation (bar, histogram, polygon, ogive). | 15                  |
| II    | Measures of Central Tendency: Mean, Median, Mode, Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation, Correlation (Pearson and Spearman), Z-scores and standardization.                                | 15                  |
| III   | Pearson's Product Moment Correlation Coefficient, Spearman's Rank Correlation Coefficient, Simple Linear Regression.                                                                                                                                                | 15                  |
| IV    | Sampling techniques, Hypothesis testing: Null and alternative hypotheses, confidence level, significance level, Chi-square test, t-test, Nearest neighbor analysis, standard distance, location quotient.                                                           | 15                  |

#### Suggested Readings:

1. Gregory, S. (2000). Statistical Methods and the Geographer. Longman.
2. Hammond, R. and McCullagh, P. (1991). Quantitative Techniques in Geography. Oxford University Press.
3. Misra, R.P. and Ramesh, A. Fundamentals of Cartography. McMillan India.
4. Pal, S.K. (1998). Statistics for Geoscientists. Concept Publishing.
5. Singh, R.L. (2009). Elements of Practical Geography. Kalyani Publishers.
6. Tiwari, R.C. Practical Geography (Hindi and English editions).
7. Yeats, M. (1974). An Introduction to Quantitative Analysis in Human Geography. McGraw Hill.



# REGIONAL PLANNING AND DEVELOPMENT

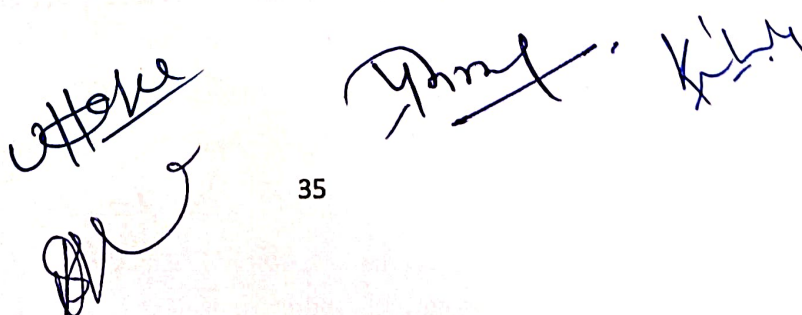
## Semester-VI<sup>th</sup> (3<sup>rd</sup> Year)

**Semester-VI<sup>th</sup> (3<sup>rd</sup> Year)**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                        |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Maximum Marks : 100</b><br><b>Theory : 75</b><br><b>Internal Assessment : 25</b><br>• Mid-Term Exam : 20<br>• Academic Activities : 05                              |                            |
| Course Code: A110651T                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                        |                            |
| Course Name: Regional Planning and Development                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        |                            |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                        |                            |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                        |                            |
| Credit: 6                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                        |                            |
| <b>Course Objectives:</b><br>1. To introduce the theoretical foundations and conceptual framework of regional planning.<br>2. To familiarize students with models and strategies of regional development.<br>3. To analyze regional disparities and planning processes in India.<br>4. To equip students with skills to evaluate regional policies and sustainable development frameworks.                                                                |                                                                                                                                                                        |                            |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Explain the concept, scope, and evolution of regional planning and development.<br>2. Analyze spatial disparities, development indicators, and regional issues.<br>3. Apply theoretical models and planning techniques in the context of Indian regions.<br>4. Evaluate regional policies and approaches for sustainable and balanced development. |                                                                                                                                                                        |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                        |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Topics</b>                                                                                                                                                          | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Definition, Nature, and Scope of Regional Planning, Concept of Regional Planning, Approaches of Regional Planning, Need and Importance of Regional Planning.           | 12                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Concept of Region: Types, Delineation of Regions, regional hierarchy,                                                                                                  | 12                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Growth Pole Theory (Perroux and Boudville), Rostow’s Stages of Economic Growth, Causes and Consequences of Regional Imbalances in India,                               | 12                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Special Area Development Programs: Hill Area Development, Tribal Area Development, River Basin Development, Five-Year Plans and Regional Development Policies in India | 12                         |
| V                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Concept of Multi-level Planning and Decentralized Governance (Panchayati Rajya Institutions), NITI Aayog, Regional Planning and Development Strategies.                | 12                         |

### Suggested Readings:

1. Chand, M., & Puri, V.K. Regional Planning in India.
2. Glasson, J. An Introduction to Regional Planning.
3. Gore, C.D. Regions in Question: Space, Development Theory and Regional Policy.
4. Mishra, R.P. Regional Planning: Concepts, Techniques and Policies.
5. Planning Commission & NITI Aayog Reports (Govt. of India).
6. Singh, R.L. (ed.) India: A Regional Geography.
7. Tiwari, R.C. Pariyojana evam Kshetriya Niyojan. Prayag Pustak Bhawan.



# SOCIO-ECONOMIC SURVEY AND FIELD-TRIP REPORT (PRACTICAL)

## Semester-VI<sup>th</sup> (3<sup>rd</sup> Year)

|                                                                      |                     |
|----------------------------------------------------------------------|---------------------|
| Programme: B.A./B.Sc.                                                | Maximum Marks : 100 |
| Course Code: A110652P                                                | Practical : 100     |
| Course Name: Socio-Economic Survey and Field-Trip Report (Practical) |                     |
| Theory/Practical: Practical                                          |                     |
| Course Type: Core/Major                                              |                     |
| Credit: 6                                                            |                     |

### Course Objectives:

1. To develop an understanding of field-based data collection methods.
2. To enable students to design and conduct field surveys
3. To train students in data analysis and interpretation.
4. To enhance report writing and presentation skills.

### Course Outcomes:

After successful completion of this practical course, the students will be able to:

1. Design and execute socio-economic surveys in selected areas using appropriate tools and techniques.
2. Collect, organize, and analyze primary data on demographic, occupational, income, education etc.
3. Prepare a comprehensive field report based on scientific formatting, data representation, and critical analysis.
4. Demonstrate teamwork, observational skills, and ethical research practices through hands-on fieldwork.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

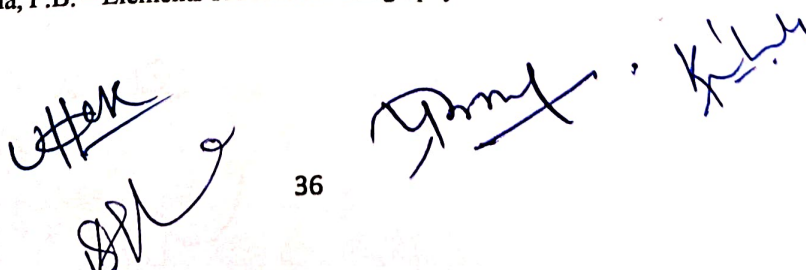
| Units | Topics                                                                                                                                                                                                                                             | No. of Lectures: 60 |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, Scope, and Importance of fieldwork in Geography, Objectives of Socio-Economic Surveys, Planning of field visits, Ethics in Field survey, Socio-Economic Survey Design: Selection of Area, Objectives, Methodology, Data Interpretation | 15                  |
| II    | Methods of Primary Data Collection, Focus Group Discussions, Observation Methods, Secondary Data Sources, Sampling Techniques                                                                                                                      | 15                  |
| III   | Tabulation and Classification of Data, Statistical Techniques for Socio-Economic Data, Use of Diagrams and Graphs, Mapping of Survey Data, Use of MS Excel/SPSS/GIS for Data Analysis.                                                             | 15                  |
| IV    | Structure of a Field Report: Introduction and Study Area Description, Objectives and Methodology, Data Analysis and Interpretation, Findings, Suggestions and Conclusion.                                                                          | 15                  |

### Note:

- Field visit is compulsory (3–7 days as per institutional norms).
- Each student must submit an individual or group field report based on the field study with references and along with maps, data analysis, and photos.
- Evaluation will be based on field participation (30%), report quality (50%), and viva-voce (20%).

### Suggested Readings:

1. Kothari, C.R. – Research Methodology: Methods and Techniques
2. Majid Hussain – Geography: Practical and Field Work
3. Misra, R.P. – Fieldwork in Geography
4. Mukherjee, Neela – Participatory Rural Appraisal: Methodology and Applications
5. Singh, R.L. and Rana, P.B. – Elements of Practical Geography





# CONTEMPORARY ENVIRONMENTAL ISSUES

## Semester-VI<sup>th</sup> (3<sup>rd</sup> Year)

|                                                |                            |
|------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                          | Maximum Marks : 100        |
| Course Code:                                   | Theory : 75                |
| Course Name: Contemporary Environmental Issues | Internal Assessment : 25   |
| Theory/Practical: Theory                       | • Mid-Term Exam : 20       |
| Course Type: Minor                             | • Academic Activities : 05 |
| Credit: 4                                      |                            |

### Course Objectives:

1. To introduce students to major environmental challenges and their geographical contexts.
2. To examine causes, consequences, and patterns of environmental degradation across scales.
3. To understand global and national efforts in addressing environmental issues through policy and action.
4. To develop critical thinking and awareness toward sustainable practices and environmental ethics.

### Course Outcomes:

By the end of this course, students will be able to:

1. Describe and analyze major environmental issues and their geographical significance.
2. Understand the human-environment relationship in the context of contemporary environmental crises.
3. Evaluate policy approaches and management strategies for mitigating environmental problems.
4. Apply knowledge to local and global environmental issues and promote sustainability.

### Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0

| Units | Topics                                                                                                                                                                                                                                        | No. of Lectures: 60 |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Concept and Scope of Environmental Studies, Man-Environment Relationship: Historical perspective, Types of Environmental Issues: Local, regional, and global, Causes and Consequences of Environmental Degradation: Natural and anthropogenic | 15                  |
| II    | Air and Water Pollution: Sources, Impacts, and Control, Soil and Land Pollution, Noise and Thermal Pollution, Microplastics, E-waste, and Radiation Hazards.                                                                                  | 15                  |
| III   | Global Warming and Greenhouse Effect, Ozone Layer Depletion and Acid Rain, Deforestation, Climate Change: Causes, impacts, and mitigation strategies.                                                                                         | 15                  |
| IV    | Environmental Impact Assessment (EIA), Natural Resource Management: Forests, water, energy, and biodiversity, Environmental Planning, Concept of Sustainability and Sustainable Development Goals (SDGs).                                     | 15                  |

### Suggested Readings:

1. Agarwal, S.K. (2002). Environmental Issues and Themes. APH Publishing.
2. Cunningham, W.P. & Cunningham, M.A. (2007). Environmental Science: A Global Concern. McGraw Hill.
3. Dash, D.K. (2008). Principles of Environmental Science and Engineering. Tata McGraw-Hill.
4. Goudie, A. (2001). The Human Impact on the Natural Environment. Blackwell.
5. Karpagam, M. (2004). Environmental Economics. Sterling Publishers.
6. Rao, M.N. & Rao, H.V.N. (2009). Air Pollution. Tata McGraw Hill.
7. Singh, S. (2006). Environmental Geography. Prayag Pustak Bhawan, Allahabad.
8. UNEP Reports, IPCC Assessment Reports, and SDG documentation (as updated).

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*[Handwritten signatures and marks]*

## CURRENT TRENDS AND ISSUES IN GEOGRAPHY

### Semester-VI<sup>th</sup> (3<sup>rd</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                    |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Maximum Marks : 100                                                                                                                                |                            |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Theory : 75                                                                                                                                        |                            |
| Course Name: Current Trends and Issues in Geography                                                                                                                                                                                                                                                                                                                                                                                                                                  | Internal Assessment : 25                                                                                                                           |                            |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Mid-Term Exam : 20                                                                                                                                 |                            |
| Course Type: Minor                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Academic Activities : 05                                                                                                                           |                            |
| Credit: 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                    |                            |
| <b>Course Objectives:</b><br>1. To introduce students to current global and regional challenges from a geographical perspective.<br>2. To develop critical understanding of theoretical and methodological shifts in geography.<br>3. To explore the role of geography in addressing socio-environmental and technological issues.<br>4. To enable students to analyze spatial problems using geospatial and statistical tools                                                       |                                                                                                                                                    |                            |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Identify and explain key recent issues impacting geography at national and global levels.<br>2. Analyze environmental, social, and urban issues from a spatial perspective.<br>3. Evaluate the significance of new technologies like GIS, Remote Sensing, and AI in geographical research.<br>4. Engage with global agendas such as the SDGs from a geographical perspective. |                                                                                                                                                    |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                    |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Topics</b>                                                                                                                                      | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Evolution of geographical thought: From determinism to possibilism, Idealism, Humanistic, radical, feminist, Behavioral and postmodern approaches. | 15                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Quantitative revolution and its impact on spatial analysis, Paradigm, Models: Meaning and types.                                                   | 15                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Urban environmental problems: Heat islands, pollution, solid waste, Environmental movements and activism (global and local).                       | 15                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Basic concept and application of remote sensing and GIS, GPS.                                                                                      | 15                         |

#### Suggested Readings:

1. Adger, W.N. et al. (2020). Climate Change and Human Security. Cambridge University Press.
2. Bryant, R.L. (2015). The International Handbook of Political Ecology. Edward Elgar.
3. Cutter, S.L. (2013). Geographies of Risk: Understanding Hazard and Resilience. Routledge.
4. Goodchild, M.F. (2018). GIS and the New Geography of Science. Springer.
5. Siddhartha, K. (2020). Emerging Trends in Geography. Kitab Mahal.
6. UNDP & UNEP Reports on SDGs and Environment



# GEOGRAPHY OF UTTAR PRADESH

## Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                         |                            |
|-----------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                   | Maximum Marks : 100        |
| Course Code: A110751T                   | Theory : 75                |
| Course Name: Geography of Uttar Pradesh | Internal Assessment : 25   |
| Theory/Practical: Theory                | • Mid-Term Exam : 20       |
| Course Type: Core/Major                 | • Academic Activities : 05 |
| Credit: 6                               |                            |

### Course Objectives:

1. To introduce the physical, climatic, and ecological characteristics of Uttar Pradesh.
2. To understand the demographic, economic, and socio-cultural dimensions of the state.
3. To analyze regional disparities, development challenges, and planning strategies.
4. To promote spatial thinking and geographic interpretation of development indicators in UP

### Course Outcomes:

After successful completion of this course, students will be able to:

1. Describe and interpret the physical geography and natural resources of Uttar Pradesh.
2. Analyze the demographic patterns and cultural diversity of the state.
3. Evaluate the agricultural, industrial, and service sectors of the state economy.
4. Assess regional development patterns and suggest strategies for sustainable growth.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                                                                 | No. of Lectures: 60 |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Location and geographical extent, Physiographic Divisions, Drainage System, Climate: Characteristics, regional variations, Climatic Regions of Uttar Pradesh, Environmental hazards: Floods, Droughts, Soils and Natural Vegetation.                                                                                                                   | 12                  |
| II    | Population Growth, Distribution, and Density, Population composition: age, sex ratio, literacy, Migration trends, Social Composition: Caste, Religion, and Language, Human Development Index (HDI) and regional disparities, Urbanization and Rural Settlements, Cultural Heritage: Pilgrimage Centres, Fairs, and Festivals, Major Tribes.            | 12                  |
| III   | Agriculture Land use and cropping patterns, Major crops: rice, wheat, sugarcane, pulses and oilseeds, Irrigation methods and sources, Agricultural productivity and green revolution impact.                                                                                                                                                           | 12                  |
| IV    | Industrial regions and major industries (Kanpur, Lucknow, Noida, Varanasi), Cottage and small-scale industries (handloom, brassware, glass, leather), Mineral resources and energy development, Transport and communication: roadways, railways, airways, Economic development and special economic zones (SEZs),                                      | 12                  |
| V     | Development Programmes and Planning Strategies in Uttar Pradesh, Regional Disparities and Backward Areas, Case Studies: Bundelkhand Drought, Eastern UP Floods, Urbanization and growth of cities: Lucknow, Kanpur, Ghaziabad, Agra), Environmental issues: deforestation, water pollution, solid waste, Disaster risk zones and mitigation strategies | 12                  |

### Suggested Readings:

1. Dubey, R.N. (2021). Geography of Uttar Pradesh. Vasundhara Prakashan, Gorakhpur.
2. Sharma, T.C. (2013). Economic and Commercial Geography of India. Rawat Publications.
3. Siddiqui, M. N. – Geography of Uttar Pradesh (Hindi & English).
4. Singh, R.L. (1971). India: A Regional Geography. National Geographical Society of India.
5. Tiwari, R.C. (2020). Uttar Pradesh Ka Bhugol. Prayag Pustak Bhawan, Allahabad.
6. UP Remote Sensing Application Centre (RSAC-UP), Lucknow – Thematic Maps & Reports.



# POLITICAL GEOGRAPHY

## Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                  |                            |
|----------------------------------|----------------------------|
| Programme: B.A./B.Sc.            | Maximum Marks : 100        |
| Course Code: A110752T            | Theory : 75                |
| Course Name: Political Geography | Internal Assessment : 25   |
| Theory/Practical: Theory         | • Mid-Term Exam : 20       |
| Course Type: Core/Major          | • Academic Activities : 05 |
| Credit: 6                        |                            |

### Course Objectives:

1. To introduce students to the fundamental concepts, theories, and approaches in Political Geography.
2. To analyze the spatial dimensions of political processes and the role of territory, boundaries, and states.
3. To examine geopolitical issues and conflicts at local, national, and global scales.
4. To develop critical skills for interpreting contemporary political maps and understanding power relations in space.

### Course Outcomes:

After successful completion of this course, students will be able to:

1. Explain key concepts and theories in Political Geography.
2. Analyze territorial organization, boundaries, and the geopolitical significance of regions.
3. Evaluate causes and consequences of geopolitical conflicts and cooperation.
4. Interpret political maps and assess spatial strategies of states and organizations.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                              | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, nature and scope of political geography, Historical development of Political Geography, Recent trends and development in political geography, Approaches to the study of political geography, Distinction between Geo-Politics and Political Geography. | 12                  |
| II    | Definition and component of State, Concept of Nation, Nation-State, Geographical factors of States: physical, human, economic, political environmental, cultural; Definition of boundary and frontier and their classification,                                     | 12                  |
| III   | Geopolitical significance of Indian Ocean, Concept of SAGAR (Security and Growth for All in the Region), Formation and classification of political regions, Boundary disputes and conflict resolution.                                                              | 12                  |
| IV    | Concepts and theories of Geopolitics (Heartland, Rimland, Organic Theory & Indian Ocean Theory), Contemporary geopolitics: Unipolarity, Multipolarity, Geostrategic regions and chokepoints, Role of international organizations (UN, EU, SAARC, QUAD, BRICS).      | 12                  |
| V     | Role of third world countries, Power Centres in the world and power centre of the world, Resource distribution and political power, Transboundary water conflicts, Political ecology, Climate change and geopolitical implications, Geopolitics of Global South.    | 12                  |

### Suggested Readings:

1. Adhikari, Sudeepta. (2015). Political Geography. Rawat Publications, Jaipur.
2. Awasthi, Brahm Dutt, Vishwa Shakti Bharat, Sasta Sahitya Mandal Prakashan, Connaught Place, New Delhi.
3. Dikshit, R.D. (1999). Political Geography: The Spatiality of Politics. Tata McGraw-Hill, New Delhi.
4. Dwivedi, R.L and Mishra, H.N., Fundamentals of Political Geography, Allahabad.
5. Gautam, A. – Advanced Political Geography (Sharda Pustak Bhawan)
6. Valkenburg, Samuel van and Stotz, Carl L, Elements of political geography.



## RURAL GEOGRAPHY

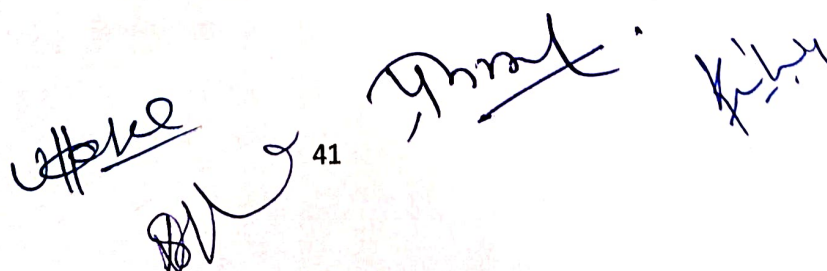
### Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                             | Maximum Marks : 100                                                                                                                                                                                                                                                                                                                                  |                            |
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                      | Theory : 75                                                                                                                                                                                                                                                                                                                                          |                            |
| Course Name: Rural Geography                                                                                                                                                                                                                                                                                                                                                                                                      | Internal Assessment : 25                                                                                                                                                                                                                                                                                                                             |                            |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                          | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                                                                 |                            |
| Course Type: Minor                                                                                                                                                                                                                                                                                                                                                                                                                | • Academic Activities : 05                                                                                                                                                                                                                                                                                                                           |                            |
| Credit: 4                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                      |                            |
| <b>Course Objectives:</b><br>1. To introduce students to the spatial patterns and processes shaping rural areas.<br>2. To examine the socio-economic structure and environmental characteristics of rural regions.<br>3. To develop an understanding of rural development strategies, planning, and policy frameworks.<br>4. To analyze changing dynamics in rural landscapes, particularly in the Indian context.                |                                                                                                                                                                                                                                                                                                                                                      |                            |
| <b>Course Outcomes:</b><br>After completion of this course, students will be able to:<br>1. Understand the nature, scope, and evolution of rural geography.<br>2. Identify spatial and functional characteristics of rural settlements and land use.<br>3. Analyze rural socio-economic issues and development policies.<br>4. Evaluate rural transformation processes and apply rural planning concepts to real-world scenarios. |                                                                                                                                                                                                                                                                                                                                                      |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                      |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                        | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                 | Meaning, Nature, Scope, and Significance of Rural Geography, Approaches to rural geography, Concept of rurality and rural-urban continuum,                                                                                                                                                                                                           | 15                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                | Types and Patterns of Rural settlement, Factors influencing rural settlement, Rural-Urban Continuum, rural-urban fringe.                                                                                                                                                                                                                             | 15                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                               | Rural service centre and their hierarchy and function, nearest neighborhood analysis, rank-size rule, Rural livelihoods and quality of life                                                                                                                                                                                                          | 15                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                | Von Thünen's Model of Agricultural Land Use, Role of Panchayati Raj and rural governance, Rural development programmes and policies in India, social issues in rural settlement: poverty, housing, empowerment of woman, healthcare, rural-urban interaction, Environmental issues in rural settlement: Infrastructure, water supply, slums, health. | 15                         |

#### Suggested Readings:

1. Clout, Hugh. Rural Geography: An Introductory Survey.
2. Government of India Reports – NITI Aayog, Census of India, Ministry of Rural Development.
3. Misra, R.P. Rural Geography. Heritage Publishers, New Delhi.
4. Singh, Katar. Rural Development: Principles, Policies and Management. Sage Publications.
5. Singh, L.R. Fundamentals of Human Geography.
6. Tiwari, R.C. Paryavaran Bhoogol evam Gramin Vikas. Prayag Pustak Bhawan.
7. Wanmali, Sudhir. Service Centres in Rural India.

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## RESEARCH METHODOLOGY

### Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                 | Maximum Marks : 100        |
| Course Code:                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 | Theory : 75                |
| Course Name: Research Methodology                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                 | Internal Assessment : 25   |
| Theory/Practical: Theory                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                 | • Mid-Term Exam : 20       |
| Course Type:                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 | • Academic Activities : 05 |
| Credit: 4                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Course Objectives:</b>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 1. To introduce students to the fundamentals of research and its significance in geographical studies.            |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 2. To develop an understanding of research design, data collection methods, and analytical techniques.            |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 3. To equip students with the skills necessary for formulating research problems, hypotheses, and report writing. |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 4. To enable students to critically evaluate and apply research methods in physical and human geography.          |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Course Outcomes:</b>                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| After successful completion of this course, students will be able to:                                             |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 1. Understand the concept and process of scientific research in geography.                                        |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 2. Formulate appropriate research problems and hypotheses based on observation and literature review.             |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 3. Apply suitable research designs, sampling techniques, and data collection methods.                             |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 4. Analyze and interpret quantitative and qualitative data using appropriate tools.                               |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| 5. Prepare a structured and well-referenced research report or dissertation.                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Units</b>                                                                                                      | <b>Topics</b>                                                                                                                                                                                                                                                                                                                                                                                                   | <b>No. of Lectures: 60</b> |
| I                                                                                                                 | Meaning, objectives, and significance of research, Types of Research, Nature of Research in Social Science and Geography, Research Ethics.                                                                                                                                                                                                                                                                      | 15                         |
| II                                                                                                                | Formulation of Research Problems and Objectives, Hypothesis: Characteristics, Types, and Testing, Review of literature and research gap, Research Design                                                                                                                                                                                                                                                        | 15                         |
| III                                                                                                               | Sources of data, Methods of primary data collection, Secondary data sources, Data Types: Quantitative and Qualitative, Sampling techniques, Scaling techniques: Likert.                                                                                                                                                                                                                                         | 15                         |
| IV                                                                                                                | Techniques of tabulation and classification, Measures of Central Tendency and Dispersion, Correlation and Regression Analysis, t-test, chi-square test, Use of software in data analysis (Excel/SPSS), Use of Cartographic and Diagrammatic Techniques in Research, Structure and Types of Research Report, Citation and referencing styles (APA, MLA, Chicago), Plagiarism, Citation Tools (Zotero, Mendeley), | 15                         |

#### Suggested Readings:

1. Clifford, N., Cope, M., Gillespie, T., & French, S. (Eds.) (2016). Key Methods in Geography. SAGE.
2. Gopal, M.H. (2012). An Introduction to Research Procedure in Social Sciences. Asia Publishing.
4. Jaspal Singh (2021). Research Methodology in Geography. Rawat Publications.
3. Kothari, C.R. (2004). Research Methodology: Methods and Techniques. New Age International.
5. Kumar, Uttam (2022). Samajik Vigyan Shodh Avam Anusandhan Paddhatiya Mulsidhant, Associated publication
4. Misra, R.P. (1991). Research Methodology: A Handbook. Concept Publishing Company.
6. R.L. Singh (1986). Elements of Practical Geography. Kalyani Publishers.
7. Ranjit Kumar (2014). Research Methodology: A Step-by-Step Guide for Beginners. SAGE Publications.



## URBAN GEOGRAPHY

### Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)

|                                                                                                         |                                                                                                                                                                                                                                                                                                                 |                            |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                   |                                                                                                                                                                                                                                                                                                                 | Maximum Marks : 100        |
| Course Code: A110851T                                                                                   |                                                                                                                                                                                                                                                                                                                 | Theory : 75                |
| Course Name: Urban Geography                                                                            |                                                                                                                                                                                                                                                                                                                 | Internal Assessment : 25   |
| Theory/Practical: Theory                                                                                |                                                                                                                                                                                                                                                                                                                 | • Mid-Term Exam : 20       |
| Course Type: Core/Major                                                                                 |                                                                                                                                                                                                                                                                                                                 | • Academic Activities : 05 |
| Credit: 6                                                                                               |                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Course Objectives:</b>                                                                               |                                                                                                                                                                                                                                                                                                                 |                            |
| 1. To introduce the fundamental concepts, scope, and development of urban geography.                    |                                                                                                                                                                                                                                                                                                                 |                            |
| 2. To analyze urban spatial structures, land use patterns, and city systems.                            |                                                                                                                                                                                                                                                                                                                 |                            |
| 3. To study processes of urbanization and their socio-economic and environmental impacts.               |                                                                                                                                                                                                                                                                                                                 |                            |
| 4. To evaluate urban planning strategies, policies, and sustainable urban development practices.        |                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Course Outcomes:</b>                                                                                 |                                                                                                                                                                                                                                                                                                                 |                            |
| After successful completion of this course, students will be able to:                                   |                                                                                                                                                                                                                                                                                                                 |                            |
| 1. Explain the evolution, scope, and theoretical framework of urban geography.                          |                                                                                                                                                                                                                                                                                                                 |                            |
| 2. Interpret urban structures, functional classifications, and land use models.                         |                                                                                                                                                                                                                                                                                                                 |                            |
| 3. Assess the impact of urbanization on society, economy, and environment.                              |                                                                                                                                                                                                                                                                                                                 |                            |
| 4. Critically examine urban issues, planning strategies, and policies in the Indian and global context. |                                                                                                                                                                                                                                                                                                                 |                            |
| Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0                         |                                                                                                                                                                                                                                                                                                                 |                            |
| Units                                                                                                   | Topics                                                                                                                                                                                                                                                                                                          | No. of Lectures: 60        |
| I                                                                                                       | Meaning, Nature, Scope and significance of Urban Geography, Evolution and Growth of Urban Settlements, Urbanization Trends, and Patterns in Developed and Developing Countries, Factors Influencing Urbanization                                                                                                | 12                         |
| II                                                                                                      | Historical Development of Cities, Functional Classification of Town and Cities: Quantitative and Qualitative Methods, Urban Morphology: Concept and Components, Theories of Urban land use: Concentric Zone Model, Sector Model, Multiple Nuclei Model.                                                         | 12                         |
| III                                                                                                     | Urban Land Use, Urban Continuum, Umland, Rural-Urban Fringe, Central Place Theory of Christaller and Losch and Urban Hierarchy, Growth Pole Theory of Perroux and Boudville, Hierarchy of Urban Centers — Rank-Size Rule, Primate City, Rural-Urban Fringe and Urban Sprawl, Metropolitan City, Satellite town. | 12                         |
| IV                                                                                                      | Contemporary Urban Issues and Management, Urban Policies and Planning, Urban Planning in India: Smart Cities, urban renewal, Role of GIS and Remote Sensing in Urban Planning                                                                                                                                   | 12                         |
| V                                                                                                       | Case Studies of Selected Indian Cities (Delhi, Mumbai, Chandigarh, Lucknow)                                                                                                                                                                                                                                     | 12                         |

#### Suggested Readings:

1. Census of India Reports & NITI A
2. Ghosh, S. Urban Geography. Rawat Publications.
3. Knox, Paul & McCarthy, Linda. Urbanization: An Introduction to Urban Geography. Pearson.
4. Pacione, Michael. Urban Geography: A Global Perspective. Routledge.
5. Singh, R.L. & Kashi Nath Singh. Urban Geography.
6. Tiwari, R.C. Nagar Bhoogol. Prayag Pustak Bhawan, Allahabad.

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**APPLICATION OF REMOTE SENSING AND GIS IN THEMATIC MAPPING (PRACTICAL)**  
**Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)**

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                | Maximum Marks : 100 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Course Code: A110852P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                | Practical : 100     |
| Course Name: Application of Remote Sensing and GIS in Thematic Mapping (Practical)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                |                     |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                |                     |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                |                     |
| Credit: 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                     |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce the fundamentals of thematic mapping techniques using remote sensing and GIS tools.</li> <li>2. To train students in the processing and interpretation of satellite imagery for mapping various aspects.</li> <li>3. To develop practical skills in the use of GIS software for spatial data visualization and thematic layer generation.</li> <li>4. To enable students to design, analyze, and produce thematic maps for applications in land use etc.</li> </ol> <b>Course Outcomes:</b><br>After successful completion of the course, students will be able to: <ol style="list-style-type: none"> <li>1. Collect, process, and interpret remote sensing data for thematic mapping applications.</li> <li>2. Apply GIS techniques to create thematic maps such as land use/land cover, population distribution etc.</li> <li>3. Use cartographic principles and spatial data analysis tools to represent geographic information accurately.</li> <li>4. Design and present thematic maps and reports using satellite imagery and GIS software to support research.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                |                     |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                |                     |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Topics                                                                                                                                                                                                                                                                                                                                         | No. of Lectures: 60 |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Introduction to thematic maps and their types, Principles of remote sensing relevant to thematic mapping, Satellite data types and resolution, Identification of features on satellite images, Basic image interpretation and visual analysis.                                                                                                 | 12                  |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sources of remote sensing data, Image downloading and importing into GIS software, Georeferencing and rectification of satellite images, Layer stacking, subset extraction, and image enhancement, Introduction to coordinate systems and map projections                                                                                      | 12                  |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Supervised and unsupervised classification techniques, Generation of land use/land cover (LULC) maps, Accuracy assessment and confusion matrix.                                                                                                                                                                                                | 12                  |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Population distribution and density maps, Literacy, sex ratio, and occupational structure mapping, Mapping of socio-economic indicators, Use of proportional symbols, dot, and choropleth mapping techniques, Soil, slope thematic maps, Case study of district level using Census data, Watershed delineation and drainage mapping using DEM. | 12                  |
| V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Data input and attribute linkage in GIS, Creation of vector layers: points, lines, and polygons, Attribute table management and thematic symbology, Map overlay, buffer, and spatial query operations, Map layout design: scale, legend, north arrow, title, and export of final maps.                                                         | 12                  |

**Note:** Students must submit a practical file containing thematic maps from each unit along with interpretation and data sources.

**Suggested Readings:**

1. Bhatta, B. – Remote Sensing and GIS
2. Burrough, P.A., and McDonnell, R.A. – Principles of Geographical Information Systems
3. Chauniyal, D. D. (2010). Remote sensing and GIS in Earth science. Hindi Granth Akademi.
4. Jensen, J.R. – Introductory Digital Image Processing
5. Lillesand, T.M., Kiefer, R.W., and Chipman, J. – Remote Sensing and Image Interpretation

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# AERIAL PHOTOGRAPHY

## Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)

|                                             |                            |
|---------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                       | Maximum Marks : 100        |
| Course Code:                                | Theory : 75                |
| Course Name: Aerial Photography (Practical) | Internal Assessment : 25   |
| Theory/Practical: Theory                    | • Mid-Term Exam : 20       |
| Course Type:                                | • Academic Activities : 05 |
| Credit: 4                                   |                            |

### Course Objectives:

1. To introduce the basic techniques and processes of aerial photography.
2. To develop practical skills in interpreting and analyzing aerial photographs.
3. To provide hands-on training in stereoscopy and photogrammetric methods.
4. To enable application of aerial imagery in thematic mapping and spatial studies.

### Course Outcomes:

After successful completion of this course, students will be able to:

1. Students will identify and utilize various types of aerial photographs.
2. Students will interpret aerial photographs using stereoscopic and photogrammetric techniques.
3. Students will perform basic measurements and mapping from aerial imagery.
4. Students will apply aerial photographic analysis in geographical and environmental studies.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                    | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Aerial Photographs: Types and Characteristics, Aerial Cameras: Components and Types, Flight Line Diagram and Determining Photo Sequence, Determination of Photo Scale, Orientation of Aerial Photographs (Photo Centre, True North, Principal Point, Fiducial Marks).     | 15                  |
| II    | Stereoscopic Vision: Principles and Importance, Stereoscope: Types, Working with Pocket Stereoscope, Mirror Stereoscope, Parallax Measurement and Height Determination from Aerial Photos, Determining Height of Objects Using Parallax Bar,                              | 15                  |
| III   | Elements of Aerial Photo Interpretation, Identification of Natural and Man-made Features, Interpretation of Land Use / Land Cover, Preparation of Thematic Map and Topographic Index Map. Aerial Photograph versus Map, Aerial Photograph versus Satellite Image.         | 15                  |
| IV    | Application of Aerial Photographs: Land use Land cover Mapping, Urban and Regional Planning, Forest Mapping, Agriculture Land use Mapping, Geomorphological and Soil Studies, Limitations and Future Trends in Aerial Photography (including UAV/Drone-based Photography) | 15                  |

### Suggested Readings:

1. American Society of Photogrammetry — Manual of Photogrammetry
2. Jensen, J.R. — Introductory Digital Image Processing: A Remote Sensing Perspective
3. Lillesand, T. M., Kiefer, R. W. — Remote Sensing and Image Interpretation
4. Relevant Government Reports / ISRO / NRSC publications
5. Wolf, P.R., Dewitt, B.A. — Elements of Photogrammetry with Applications in GIS

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Holee      Yana      Kibhi

## **GEOGRAPHY OF UTTAR PRADESH**

### **Semester-VII<sup>th</sup> (4<sup>th</sup> Year)**

|                                         |                            |
|-----------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                   | Maximum Marks : 100        |
| Course Code: A110751T                   | Theory : 75                |
| Course Name: Geography of Uttar Pradesh | Internal Assessment : 25   |
| Theory/Practical: Theory                | • Mid-Term Exam : 20       |
| Course Type: Core/Major                 | • Academic Activities : 05 |
| Credit: 6                               |                            |

### Course Objectives:

1. To introduce the physical, climatic, and ecological characteristics of Uttar Pradesh.
2. To understand the demographic, economic, and socio-cultural dimensions of the state.
3. To analyze regional disparities, development challenges, and planning strategies.
4. To promote spatial thinking and geographic interpretation of development indicators in UP.

**Course Outcomes:**

**After successful completion of this course, students will be able to:**

1. Describe and interpret the physical geography and natural resources of Uttar Pradesh.
2. Analyze the demographic patterns and cultural diversity of the state.
3. Evaluate the agricultural, industrial, and service sectors of the state economy.
4. Assess regional development patterns and suggest strategies for sustainable growth.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                                                                 | No. of Lectures: 60 |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Location and geographical extent, Physiographic Divisions, Drainage System, Climate: Characteristics, regional variations, Climatic Regions of Uttar Pradesh, Environmental hazards: Floods, Droughts, Soils and Natural Vegetation.                                                                                                                   | 12                  |
| II    | Population Growth, Distribution, and Density, Population composition: age, sex ratio, literacy, Migration trends, Social Composition: Caste, Religion, and Language, Human Development Index (HDI) and regional disparities, Urbanization and Rural Settlements, Cultural Heritage: Pilgrimage Centres, Fairs, and Festivals, Major Tribes.            | 12                  |
| III   | Agriculture Land use and cropping patterns, Major crops: rice, wheat, sugarcane, pulses and oilseeds, Irrigation methods and sources, Agricultural productivity and green revolution impact.                                                                                                                                                           | 12                  |
| IV    | Industrial regions and major industries (Kanpur, Lucknow, Noida, Varanasi), Cottage and small-scale industries (handloom, brassware, glass, leather), Mineral resources and energy development, Transport and communication: roadways, railways, airways, Economic development and special economic zones (SEZs),                                      | 12                  |
| V     | Development Programmes and Planning Strategies in Uttar Pradesh, Regional Disparities and Backward Areas, Case Studies: Bundelkhand Drought, Eastern UP Floods, Urbanization and growth of cities: Lucknow, Kanpur, Ghaziabad, Agra), Environmental issues: deforestation, water pollution, solid waste, Disaster risk zones and mitigation strategies | 12                  |

### Suggested Readings:

- Suggested Readings:**
1. Dubey, R.N. (2021). Geography of Uttar Pradesh. Vasundhara Prakashan, Gorakhpur.
  2. Sharma, T.C. (2013). Economic and Commercial Geography of India. Rawat Publications.
  3. Siddiqui, M. N. – Geography of Uttar Pradesh (Hindi & English).
  4. Singh, R.L. (1971). India: A Regional Geography. National Geographical Society of India.
  5. Tiwari, R.C. (2020). Uttar Pradesh Ka Bhugol. Prayag Pustak Bhawan, Allahabad.
  6. UP Remote Sensing Application Centre (RSAC-UP), Lucknow – Thematic Maps & Reports.



# POLITICAL GEOGRAPHY

## Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                  |                            |
|----------------------------------|----------------------------|
| Programme: B.A./B.Sc.            | Maximum Marks : 100        |
| Course Code: A110752T            | Theory : 75                |
| Course Name: Political Geography | Internal Assessment : 25   |
| Theory/Practical: Theory         | • Mid-Term Exam : 20       |
| Course Type: Core/Major          | • Academic Activities : 05 |
| Credit: 6                        |                            |

### Course Objectives:

1. To introduce students to the fundamental concepts, theories, and approaches in Political Geography.
2. To analyze the spatial dimensions of political processes and the role of territory, boundaries, and states.
3. To examine geopolitical issues and conflicts at local, national, and global scales.
4. To develop critical skills for interpreting contemporary political maps and understanding power relations in space.

### Course Outcomes:

After successful completion of this course, students will be able to:

1. Explain key concepts and theories in Political Geography.
2. Analyze territorial organization, boundaries, and the geopolitical significance of regions.
3. Evaluate causes and consequences of geopolitical conflicts and cooperation.
4. Interpret political maps and assess spatial strategies of states and organizations.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                              | No. of Lectures: 60 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Definition, nature and scope of political geography, Historical development of Political Geography, Recent trends and development in political geography, Approaches to the study of political geography, Distinction between Geo-Politics and Political Geography. | 12                  |
| II    | Definition and component of State, Concept of Nation, Nation-State, Geographical factors of States: physical, human, economic, political environmental, cultural; Definition of boundary and frontier and their classification,                                     | 12                  |
| III   | Geopolitical significance of Indian Ocean, Concept of SAGAR (Security and Growth for All in the Region), Formation and classification of political regions, Boundary disputes and conflict resolution.                                                              | 12                  |
| IV    | Concepts and theories of Geopolitics (Heartland, Rimland, Organic Theory & Indian Ocean Theory), Contemporary geopolitics: Unipolarity, Multipolarity, Geostrategic regions and chokepoints, Role of international organizations (UN, EU, SAARC, QUAD, BRICS).      | 12                  |
| V     | Role of third world countries, Power Centres in the world and power centre of the world, Resource distribution and political power, Transboundary water conflicts, Political ecology, Climate change and geopolitical implications, Geopolitics of Global South.    | 12                  |

### Suggested Readings:

7. Adhikari, Sudepta. (2015). Political Geography. Rawat Publications, Jaipur.
8. Awasthi, Braham Dutt, Vishwa Shakti Bharat, Sasta Sahitya Mandal Prakashan, Connaught Place, New Delhi.
9. Dikshit, R.D. (1999). Political Geography: The Spatiality of Politics. Tata McGraw-Hill, New Delhi.
10. Dwivedi, R.L and Mishra, H.N., Fundamentals of Political Geography, Allahabad.
11. Gautam, A. – Advanced Political Geography (Sharda Pustak Bhawan)
12. Valkenburg, Samuel van and Stotz, Carl L, Elements of political geography.

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## RESEARCH METHODOLOGY

### Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                   |                            |
|-----------------------------------|----------------------------|
| Programme: B.A./B.Sc.             | Maximum Marks : 100        |
| Course Code:                      | Theory : 75                |
| Course Name: Research Methodology | Internal Assessment : 25   |
| Theory/Practical: Theory          | • Mid-Term Exam : 20       |
| Course Type:                      | • Academic Activities : 05 |
| Credit: 4                         |                            |

#### Course Objectives:

1. To introduce students to the fundamentals of research and its significance in geographical studies.
2. To develop an understanding of research design, data collection methods, and analytical techniques.
3. To equip students with the skills necessary for formulating research problems, hypotheses, and report writing.
4. To enable students to critically evaluate and apply research methods in physical and human geography.

#### Course Outcomes:

After successful completion of this course, students will be able to:

1. Understand the concept and process of scientific research in geography.
2. Formulate appropriate research problems and hypotheses based on observation and literature review.
3. Apply suitable research designs, sampling techniques, and data collection methods.
4. Analyze and interpret quantitative and qualitative data using appropriate tools.
5. Prepare a structured and well-referenced research report or dissertation.

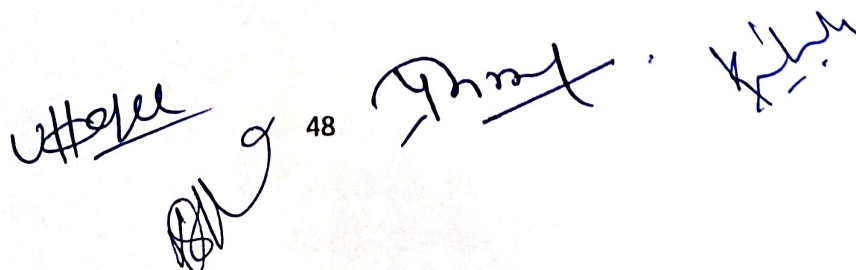
**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                                                                                                                          | No. of Lectures: 60 |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Meaning, objectives, and significance of research, Types of Research, Nature of Research in Social Science and Geography, Research Ethics.                                                                                                                                                                                                                                                                      | 15                  |
| II    | Formulation of Research Problems and Objectives, Hypothesis: Characteristics, Types, and Testing, Review of literature and research gap, Research Design                                                                                                                                                                                                                                                        | 15                  |
| III   | Sources of data, Methods of primary data collection, Secondary data sources, Data Types: Quantitative and Qualitative, Sampling techniques, Scaling techniques: Likert.                                                                                                                                                                                                                                         | 15                  |
| IV    | Techniques of tabulation and classification, Measures of Central Tendency and Dispersion, Correlation and Regression Analysis, t-test, chi-square test, Use of software in data analysis (Excel/SPSS), Use of Cartographic and Diagrammatic Techniques in Research, Structure and Types of Research Report, Citation and referencing styles (APA, MLA, Chicago), Plagiarism, Citation Tools (Zotero, Mendeley), | 15                  |

#### Suggested Readings:

1. Clifford, N., Cope, M., Gillespie, T., & French, S. (Eds.) (2016). Key Methods in Geography. SAGE.
2. Gopal, M.H. (2012). An Introduction to Research Procedure in Social Sciences. Asia Publishing.
4. Jaspal Singh (2021). Research Methodology in Geography. Rawat Publications.
3. Kothari, C.R. (2004). Research Methodology: Methods and Techniques. New Age International.
5. Kumar, Uttam (2022). Samajik Vigyan Shodh Avam Anusandhan Paddhatiya Mulsidhant, Associated publication
4. Misra, R.P. (1991). Research Methodology: A Handbook. Concept Publishing Company.
6. R.L. Singh (1986). Elements of Practical Geography. Kalyani Publishers.
7. Ranjit Kumar (2014). Research Methodology: A Step-by-Step Guide for Beginners. SAGE Publications.

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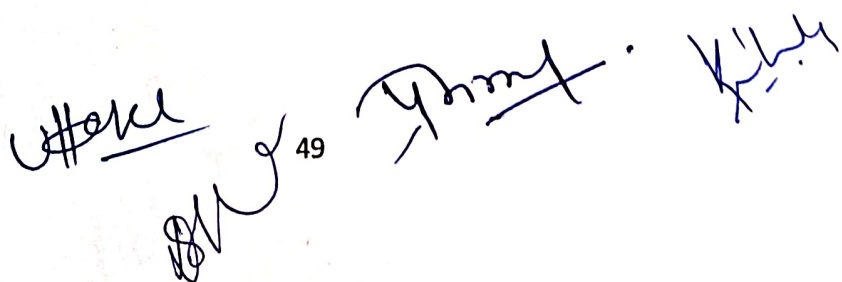
## SYNOPSIS OF DISSERTATION

### Semester-VII<sup>th</sup> (4<sup>th</sup> Year)

|                                                                                             |                                                                                                                                                                                                                                                                                                                         |                     |
|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Programme: B.A./B.Sc.                                                                       | Maximum Marks : 100                                                                                                                                                                                                                                                                                                     |                     |
| Course Code:                                                                                | Theory : 75                                                                                                                                                                                                                                                                                                             |                     |
| Course Name: Synopsis of Dissertation                                                       | Internal Assessment : 25                                                                                                                                                                                                                                                                                                |                     |
| Theory/Practical: Theory                                                                    | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                                    |                     |
| Course Type:                                                                                | • Academic Activities : 05                                                                                                                                                                                                                                                                                              |                     |
| Credit: 4                                                                                   |                                                                                                                                                                                                                                                                                                                         |                     |
| <b>Course Objectives:</b>                                                                   |                                                                                                                                                                                                                                                                                                                         |                     |
| 1. To introduce the purpose, structure, and significance of a research synopsis.            |                                                                                                                                                                                                                                                                                                                         |                     |
| 2. To enable students to design an effective research framework.                            |                                                                                                                                                                                                                                                                                                                         |                     |
| 3. To develop skills for critical literature review and identifying research gaps.          |                                                                                                                                                                                                                                                                                                                         |                     |
| 4. To train students in preparing and presenting a well-structured research synopsis.       |                                                                                                                                                                                                                                                                                                                         |                     |
| <b>Course Outcomes:</b>                                                                     |                                                                                                                                                                                                                                                                                                                         |                     |
| After successful completion of this course, students will be able to:                       |                                                                                                                                                                                                                                                                                                                         |                     |
| 1. Students will be able to define a research problem with clear objectives and hypotheses. |                                                                                                                                                                                                                                                                                                                         |                     |
| 2. Students will conduct systematic literature reviews to identify research questions.      |                                                                                                                                                                                                                                                                                                                         |                     |
| 3. Students will develop an appropriate research design and methodology.                    |                                                                                                                                                                                                                                                                                                                         |                     |
| 4. Students will prepare and present a complete and academically sound research synopsis.   |                                                                                                                                                                                                                                                                                                                         |                     |
| Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0             |                                                                                                                                                                                                                                                                                                                         |                     |
| Units                                                                                       | Topics                                                                                                                                                                                                                                                                                                                  | No. of Lectures: 60 |
| I                                                                                           | Meaning and Purpose of Research, Types of Research, The Dissertation as a Research Endeavour, Importance of Writing a Good Synopsis, Structure of a Research Synopsis, Ethics in Research and Plagiarism Awareness.                                                                                                     | 15                  |
| II                                                                                          | Title of the Research — Selection and Framing, Introduction and Background of the Study, Statement of the Problem, Review of Literature — Purpose and Process, Identification of Research Gaps, Formulation of Objectives and Hypotheses                                                                                | 15                  |
| III                                                                                         | Research Design, Methodology Section of Synopsis, Selection of Study Area, Data Collection Methods, Tools and Techniques of Data Analysis, Significance and Scope of the Study, Expected Outcomes                                                                                                                       | 15                  |
| IV                                                                                          | Formatting of a Research Synopsis, Language and Style of Academic Writing, Referencing and Citation Styles (APA, MLA, Chicago, etc.), Timelines and Work Plan (Gantt Chart), Budget Estimation, Common Errors in Synopsis Writing, Techniques for Effective Presentation of Synopsis, Evaluation Criteria of a Synopsis | 15                  |

#### Suggested Readings:

1. Best, J.W. & Kahn, J.V. — Research in Education
2. Kothari, C.R. — Research Methodology: Methods and Techniques
3. Krishnaswami, O.R. & Ranganatham, M. — Methodology of Research in Social Sciences
4. Kumar, Ranjit — Research Methodology: A Step-by-Step Guide for Beginners
5. Kumar, Uttam (2022). Samajik Vigyan Shodh Avam Anusandhan Paddhatiya Mulsidhant, Associated publication
6. Turabian, Kate L. — A Manual for Writers of Research Papers, Theses, and Dissertations



## URBAN GEOGRAPHY

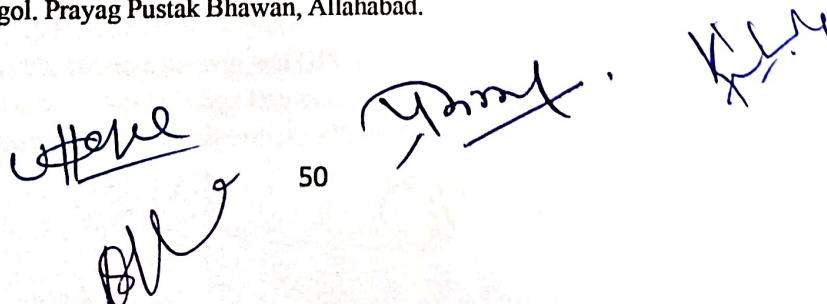
### Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)

| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Maximum Marks : 100                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code: A110851T                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Theory : 75                                                                                                                                                                                                                                                                                                     |
| Course Name: Urban Geography                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Internal Assessment : 25                                                                                                                                                                                                                                                                                        |
| Theory/Practical: Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | • Mid-Term Exam : 20                                                                                                                                                                                                                                                                                            |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | • Academic Activities : 05                                                                                                                                                                                                                                                                                      |
| Credit: 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                 |
| <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To introduce the fundamental concepts, scope, and development of urban geography.</li> <li>2. To analyze urban spatial structures, land use patterns, and city systems.</li> <li>3. To study processes of urbanization and their socio-economic and environmental impacts.</li> <li>4. To evaluate urban planning strategies, policies, and sustainable urban development practices.</li> </ol>                                                             |                                                                                                                                                                                                                                                                                                                 |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to: <ol style="list-style-type: none"> <li>1. Explain the evolution, scope, and theoretical framework of urban geography.</li> <li>2. Interpret urban structures, functional classifications, and land use models.</li> <li>3. Assess the impact of urbanization on society, economy, and environment.</li> <li>4. Critically examine urban issues, planning strategies, and policies in the Indian and global context.</li> </ol> |                                                                                                                                                                                                                                                                                                                 |
| Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No. of Lectures: 60                                                                                                                                                                                                                                                                                             |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Meaning, Nature, Scope and significance of Urban Geography, Evolution and Growth of Urban Settlements, Urbanization Trends, and Patterns in Developed and Developing Countries, Factors Influencing Urbanization                                                                                                |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Historical Development of Cities, Functional Classification of Town and Cities: Quantitative and Qualitative Methods, Urban Morphology: Concept and Components, Theories of Urban land use: Concentric Zone Model, Sector Model, Multiple Nuclei Model.                                                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Urban Land Use, Urban Continuum, Umland, Rural-Urban Fringe, Central Place Theory of Christaller and Losch and Urban Hierarchy, Growth Pole Theory of Perroux and Boudville, Hierarchy of Urban Centers — Rank-Size Rule, Primate City, Rural-Urban Fringe and Urban Sprawl, Metropolitan City, Satellite town. |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Contemporary Urban Issues and Management, Urban Policies and Planning, Urban Planning in India: Smart Cities, urban renewal, Role of GIS and Remote Sensing in Urban Planning                                                                                                                                   |
| V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Case Studies of Selected Indian Cities (Delhi, Mumbai, Chandigarh, Lucknow)                                                                                                                                                                                                                                     |

#### Suggested Readings:

1. Census of India Reports & NITI A
2. Ghosh, S. Urban Geography. Rawat Publications.
3. Knox, Paul & McCarthy, Linda. Urbanization: An Introduction to Urban Geography. Pearson.
4. Pacione, Michael. Urban Geography: A Global Perspective. Routledge.
5. Singh, R.L. & Kashi Nath Singh. Urban Geography.
6. Tiwari, R.C. Nagar Bhoogol. Prayag Pustak Bhawan, Allahabad.

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**APPLICATION OF REMOTE SENSING AND GIS IN THEMATIC MAPPING (PRACTICAL)**  
**Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)**

|                                                                                    |                     |
|------------------------------------------------------------------------------------|---------------------|
| Programme: B.A./B.Sc.                                                              | Maximum Marks : 100 |
| Course Code: A110852P                                                              | Practical : 100     |
| Course Name: Application of Remote Sensing and GIS in Thematic Mapping (Practical) |                     |
| Theory/Practical: Practical                                                        |                     |
| Course Type: Core/Major                                                            |                     |
| Credit: 6                                                                          |                     |

**Course Objectives:**

1. To introduce the fundamentals of thematic mapping techniques using remote sensing and GIS tools.
2. To train students in the processing and interpretation of satellite imagery for mapping various aspects.
3. To develop practical skills in the use of GIS software for spatial data visualization and thematic layer generation.
4. To enable students to design, analyze, and produce thematic maps for applications in land use etc.

**Course Outcomes:**

After successful completion of the course, students will be able to:

1. Collect, process, and interpret remote sensing data for thematic mapping applications.
2. Apply GIS techniques to create thematic maps such as land use/land cover, population distribution etc.
3. Use cartographic principles and spatial data analysis tools to represent geographic information accurately.
4. Design and present thematic maps and reports using satellite imagery and GIS software to support research.

**Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0**

| Units | Topics                                                                                                                                                                                                                                                                                                                                         | No. of Lectures: 60 |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I     | Introduction to thematic maps and their types, Principles of remote sensing relevant to thematic mapping, Satellite data types and resolution, Identification of features on satellite images, Basic image interpretation and visual analysis.                                                                                                 | 12                  |
| II    | Sources of remote sensing data, Image downloading and importing into GIS software, Georeferencing and rectification of satellite images, Layer stacking, subset extraction, and image enhancement, Introduction to coordinate systems and map projections                                                                                      | 12                  |
| III   | Supervised and unsupervised classification techniques, Generation of land use/land cover (LULC) maps, Accuracy assessment and confusion matrix.                                                                                                                                                                                                | 12                  |
| IV    | Population distribution and density maps, Literacy, sex ratio, and occupational structure mapping, Mapping of socio-economic indicators, Use of proportional symbols, dot, and choropleth mapping techniques, Soil, slope thematic maps, Case study of district level using Census data, Watershed delineation and drainage mapping using DEM. | 12                  |
| V     | Data input and attribute linkage in GIS, Creation of vector layers: points, lines, and polygons, Attribute table management and thematic symbology, Map overlay, buffer, and spatial query operations, Map layout design: scale, legend, north arrow, title, and export of final maps.                                                         | 12                  |

**Note:** Students must submit a practical file containing thematic maps from each unit along with interpretation and data sources.

**Suggested Readings:**

1. Bhatta, B. – Remote Sensing and GIS
2. Burrough, P.A., and McDonnell, R.A. – Principles of Geographical Information Systems
3. Chauniyal, D. D. (2010). Remote sensing and GIS in Earth science. Hindi Granth Akademi.
4. Jensen, J.R. – Introductory Digital Image Processing
5. Lillesand, T.M., Kiefer, R.W., and Chipman, J. – Remote Sensing and Image Interpretation

# DISSERTATION

## Semester-VIII<sup>th</sup> (4<sup>th</sup> Year)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                             |                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Programme: B.A./B.Sc.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Maximum Marks : 100</b><br><b>Field Work : 30</b><br><b>Dissertation Report : 50</b><br><b>Viva-Voce : 20</b>                                                                                                                                                                                            |                            |
| Course Code: A110853P                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                             |                            |
| Course Name: Dissertation                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                             |                            |
| Theory/Practical: Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                             |                            |
| Course Type: Core/Major                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                             |                            |
| Credit: 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                             |                            |
| <b>Course Objectives:</b><br>1. To introduce students to the process and importance of academic research.<br>2. To enable formulation of research problems, objectives, and hypotheses.<br>3. To train students in data collection, analysis, and interpretation.<br>4. To develop academic writing and ethical reporting skills.                                                                                                                                                |                                                                                                                                                                                                                                                                                                             |                            |
| <b>Course Outcomes:</b><br>After successful completion of this course, students will be able to:<br>1. Formulate a research problem and define specific objectives and hypotheses.<br>2. Conduct literature review and prepare a conceptual and theoretical framework.<br>3. Apply appropriate research methodology to collect, analyze, and interpret data.<br>4. Present research findings through a structured dissertation with proper referencing and cartographic support. |                                                                                                                                                                                                                                                                                                             |                            |
| <b>Total No. of Lectures, Tutorials and Practical hours in per week (L-T-P): 4-0-0</b>                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                             |                            |
| <b>Units</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Topics</b>                                                                                                                                                                                                                                                                                               | <b>No. of Lectures: 60</b> |
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Meaning and significance of a dissertation in academic research, Types of dissertations, Understanding research areas and topics, Ethical considerations in research, Plagiarism and academic integrity.                                                                                                    | 12                         |
| II                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Identification of research problem, Review of Literature and Research Gap, objectives and research questions, Formulating hypotheses, Conceptual/Theoretical Framework, Preparation of Research Proposal (Synopsis).                                                                                        | 12                         |
| III                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Primary and secondary data: nature, sources, and importance, Data Collection Tools and Techniques, Sampling methods.                                                                                                                                                                                        | 12                         |
| IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Data processing: classification, tabulation, Quantitative Analysis, Qualitative data analysis Use of software: Excel, SPSS, GIS, Preparation of charts, maps, and diagrams.                                                                                                                                 | 12                         |
| V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Structure of the dissertation: Title Page, declaration, acknowledgments, Abstract chapters, references, appendices, writing chapters: Introduction, Review of Literature, Methodology, Data Analysis, Findings, and Conclusion, Referencing styles: APA, MLA, Chicago, Formatting and submission guidelines | 12                         |

### Suggested Readings:

1. APA Publication Manual (7th Edition) for referencing and citation.
2. Kothari, C. R., & Garg, G. (2019). Research Methodology: Methods and Techniques. New Age International.
3. Kumar, R. (2019). Research Methodology: A Step-by-Step Guide for Beginners. SAGE.
4. Kumar, Uttam (2022). Samajik Vigyan Shodh Avam Anusandhan Paddhatiya Mulsidhant, Associated publication
5. Turabian, K. L. (2018). A Manual for Writers of Research Papers, Theses, and Dissertations. University of Chicago Press.
6. Walliman, N. (2017). Your Undergraduate Dissertation: The Essential Guide for Success. SAGE.

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