# SMRJ Government College, Siwani (Bhiwani)

(Affiliated to Chaudhary Bansi Lal University, Bhiwani)

**Session: 2025-26**

## *Lesson Plan*

## *(Department of Geography)*

**Teacher: Satpal Kumar**
**Class: M.Sc. Geography**
**Semester: 1st**
**Maximum Marks: 100**
**End Term Exam Marks: 50**

**Course Type & Title: Advanced Climatology**
**Course Code: 25PG-GEO-102**
**Credits: 4**
**Internal Assessment Marks: 30**
**Practical Marks:** 20

**Course Outcomes:**

1. Explain advanced atmospheric processes and global climate systems using theoretical and empirical perspectives.
2. Analyze spatial and temporal patterns of climate variability using climatological datasets.
3. Evaluate the science and evidence of climate change and its regional and global impacts.
4. Apply remote sensing, GIS, and statistical tools for climatic data analysis and visualization.

| Sr. No. | Week/Month, 2025 | Unit/ Topic/ Chapter to be covered | Assignment/ Test/ Remarks, if any |
|---|---|---|---|
| 1 | 01.08.2025 – 02.08.2025 | Familiar with syllabus | |
| 2 | 04.08.2025 – 09.08.2025 | Structure and thermodynamics of the atmosphere | |
| 3 | 11.08.2025 – 16.08.2025 | Global energy balance, radiation laws, and heat transfer mechanisms, General circulation of the atmosphere, | |
| 4 | 18.08.2025 – 23.08.2025 | Walker circulation, jet streams, ENSO, and monsoon systems, Atmospheric stability, | |
| 5 | 25.08.2025 – 30.08.2025 | cloud microphysics and precipitation processes, Contemporary approaches: numerical modeling, | |
| 6 | 01.09.2025 – 06.09.2025 | climate system feedbacks, Earth system science perspective | |
| 7 | 08.09.2025 – 13.09.2025 | Classical and modern climate classifications (Köppen, Thornthwaite, Trewartha, and empirical/statistical systems) | |
| 8 | 15.09.2025 – 20.09.2025 | Inter-annual, decadal, and centennial climate variability (ENSO, NAO, PDO), Paleoclimatology: proxies, methods. and climatic reconstructions | |
| 9 | 22.09.2025 – 27.09.2025 | Regional climatology with special reference to India: monsoon dynamics | |

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| 10 | 29.09.2025 – 04.10.2025 | droughts, and extreme weather events, Synoptic and mesoscale meteorology; role of teleconnections. | **Assignment** |
| 11 | 06.10.2025 – 11.10.2025 | IPCC framework, greenhouse gases, radiative forcing, and anthropogenic emissions, Climate models and scenarios (GCMs, RCMs, downscaling techniques), | |
| 12 | 13.10.2025 – 18.10.2025 | Observed and projected climate trends (temperature, precipitation, sea-level rise), Impacts on ecosystems, agriculture, | |
| 13 | 27.10.2025 – 01.11.2025 | water resources, and human health, Climate change mitigation, adaptation, and policy (UNFCCC, Paris Agreement), Role of geospatial technologies in climate research, Anthropogenic impacts on geomorphic systems (urbanization, mining, damming) | |
| 14 | 03.11.2025 – 08.11.2025 | Interpretation of synoptic weather maps and weather symbols | **Minor Test** |
| 15 | 10.11.2025 – 15.11.2025 | Preparation of isopleth maps (isotherms, isohyets) using GIS<br>Time series analysis of temperature and rainfall data (trend detection) | |
| 16 | 17.11.2025 – 22.11.2025 | Correlation and regression analysis of climatic variables | |
| 17 | 24.11.2025 – 29.11.2025 | Field visit to a weather observatory and recording of the observations from various instruments | |

**Recommended Books/ E resources/ LMS:**


1. Barry, R. G., & Chorley, R. J. (2010). *Atmosphere, weather and climate* (9th ed.). Routledge.
2. Lutgens, F. K., & Tarbuck, E. J. (2013). *The atmosphere: An introduction to meteorology* (12th ed.). Pearson.
3. Critchfield, H. J. (2013). *General climatology* (4th ed.). Prentice Hall.
4. Aguado, E., & Burt, J. E. (2018). *Understanding weather and climate* (7th ed.). Pearson.
5. Lal, D. S. (2012). *Climatology* (4th ed.). Sharda Pustak Bhawan.
6. IPCC. (2021). *Climate change 2021: The physical science basis*. Cambridge University Press.
7. Trenberth, K. E. (Ed.). (2005). *Climate system modeling*. Cambridge University Press.
8. Peixoto, J. P., & Oort, A. H. (1992). *Physics of climate*. Springer.


**Signature of the teacher concerned**

**Head of the Department**

# SMRJ Government College, Siwani (Bhiwani)

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**Session: 2025-26**

## *Lesson Plan*

## *(Department of Geography)*

**Teacher: Satpal Kumar**
**Class: M.Sc. Geography**
**Semester:** 1st
**Maximum Marks: 100**
**End Term Exam Marks: 50**

**Course Type & Title: Principles of Geomorphology**
**Course Code:** 25PG-GEO-101
**Credits: 4**
**Internal Assessment Marks: 30**
**Practical Marks:** 20

**Course Outcomes:**

1. Understand and explain the fundamental concepts and processes in geomorphology.
2. Analyze the evolution of landforms in relation to structure, process, and time.
3. Evaluate different geomorphic theories and apply them in interpreting landscapes.
4. Use topographic maps, field techniques, and GIS tools to identify and map landforms.

| Sr. No. | Week/Month, 2025 | Unit/ Topic/ Chapter to be covered | Assignment/ Test/ Remarks, if any |
|---|---|---|---|
| 1 | 01.08.2025 – 02.08.2025 | Familiar with Syllabus | |
| 2 | 04.08.2025 – 09.08.2025 | Nature, scope, and significance of geomorphology in Earth system science, | |
| 3 | 11.08.2025 – 16.08.2025 | Historical development of geomorphic thought: Davisian, Penckian, and Dynamic Equilibrium. | |
| 4 | 18.08.2025 – 23.08.2025 | Systems approach and process-response models, Contemporary trends: Process geomorphology, tectonic geomorphology, and environmental geomorphology | Assignment |
| 5 | 25.08.2025 – 30.08.2025 | Endogenic processes: volcanism, earthquakes, folding and faulting | |
| 6 | 01.09.2025 – 06.09.2025 | mountain building, Exogenic processes: weathering, mass movement, erosion, transportation, and deposition | |
| 7 | 08.09.2025 – 13.09.2025 | Geomorphic agents and associated landforms: fluvial, | |

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|---|---|---|---|
| | | glacial, Aeolian | |
| 8 | 15.09.2025 – 20.09.2025 | Coastal, and karst systems | |
| 9 | 22.09.2025 – 27.09.2025 | Plate tectonics and landform evolution, Neo-tectonics and active tectonics in landscape modification, | |
| 10 | 29.09.2025 – 04.10.2025 | Climatic geomorphology: landforms in arid, humid, periglacial, and tropical regions, | |
| 11 | 06.10.2025 – 11.10.2025 | Quaternary landscape evolution: glacial-interglacial cycles and sea-level changes. | |
| 12 | 13.10.2025 – 18.10.2025 | Interpretation of topographic maps & Aerial Photographs for geomorphic features | |
| 13 | 27.10.2025 – 01.11.2025 | Slope analysis: clinographic, hypsometric, and gradient analysis | **Assignment** |
| 14 | 03.11.2025 – 08.11.2025 | Drainage basin and network analysis (stream order, bifurcation ratio, density) | **Minor Test** |
| 15 | 10.11.2025 – 15.11.2025 | Landforms Interpretation and Analysis with Digital Elevation Models (DEMs) | |
| 16 | 17.11.2025 – 22.11.2025 | Field identification and interpretation of landforms and geomorphic processes (local/nearby region) | |
| 17 | 24.11.2025 – 29.11.2025 | Prepare a geomorphic map using GIS tools. | |

**Recommended Books/ E resources/ LMS:**


1. Huggett, R. J. (2011). *Fundamentals of geomorphology* (3rd ed.). Routledge.
2. Summerfield, M. A. (1991). *Global geomorphology*. Prentice Hall.
3. Ritter, D. F., Kochel, R. C., & Miller, J. R. (2011). *Process geomorphology* (5th ed.). Waveland Press.
4. Kale, V. S., & Gupta, A. (2001). *Introduction to geomorphology*. Orient Blackswan.Burbank,
5. D. W., & Anderson, R. S. (2011). *Tectonic geomorphology* (2nd ed.). Wiley-Blackwell.
6. Anderson, R. S., & Anderson, S. P. (2010). *Geomorphology: The mechanics and chemistry of landscapes*. Cambridge University Press.
7. Huggett, R. J. (2011). *Fundamentals of geomorphology (3rd ed.).* Routledge.
8. Summerfield, M. A. (1991). *Global geomorphology*. Prentice Hall.
9. Kale, V. S. (2014). *Landscape processes and landforms of India.* Springer.


**Signature of the teacher concerned**

**Head of the Department**

**SMRJ Government College, Siwani (Bhiwani)**
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**Session: 2025-26**

# *Lesson Plan*
# *(Department of Geography)*

**Teacher: Satpal Kumar**
**Class: M.Sc. Geography**
**Semester:** 3rd
**Maximum Marks: 100**
**End Term Exam Marks: 80**

**Course Type & Title: Urban Geography**
**Course Code:** 19 GEO 302
**Credits: 4**
**Internal Assessment Marks: 20**

**Course Outcomes:**

The objectives of the course are to understand the process of urbanization and origin, growth and classification of urban settlements with relevant theories and models.
It also aims to relate urbanization process and the evolution of urban system and examine the contemporary urban issues.

| Sr. No. | Week/Month, 2025 | Unit/ Topic/ Chapter to be covered | Assignment/ Test/ Remarks, if any |
|---|---|---|---|
| 1 | 01.08.2025 – 02.08.2025 | Familiar with Syllabus | |
| 2 | 04.08.2025 – 09.08.2025 | Defining Urban, Urbanization and Urbanism; Urban Geography: Definition, nature and scope | |
| 3 | 11.08.2025 – 16.08.2025 | Origin growth & stages of urban systems; (Conurbation, Megalopolis, etc.) Lewis Mumford & Griffith Taylor. | |
| 4 | 18.08.2025 – 23.08.2025 | Urban population characteristics, Urban systems in Ancient Civilization, Medieval and Modern India. | Assignment |
| 5 | 25.08.2025 – 30.08.2025 | Trend of Urbanization in World & India. | |
| 6 | 01.09.2025 – 06.09.2025 | City and region; Spatial linkages (rural urban linkages) and interactions | |
| 7 | 08.09.2025 – 13.09.2025 | Rural Urban fringe, Suburbanization; Spatial network framework - | |
| 8 | 15.09.2025 – 20.09.2025 | Central Place Theory: Christaller, Losch, Walter Isard | |
| 9 | 22.09.2025 – 27.09.2025 | Size and spacing of cities: Rank Size Rule, Primate City; | |

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| 10 | 29.09.2025 – 04.10.2025 | Functional classification of cities: concepts and scheme of classification | |
| 11 | 06.10.2025 – 11.10.2025 | Urban Morphology and land use; Models of city structure: Concentric Zone model by E.W. Burgess, Sector model by Homer Hoyet, | |
| 12 | 13.10.2025 – 18.10.2025 | Multiple nuclei model by Harris and Ullman; Contemporary urban morphology in the wake of globalization – global city. | |
| 13 | 27.10.2025 – 01.11.2025 | Urbanisation in India: Patterns and Trends; Urban problems: Environmental issues | |
| 14 | 03.11.2025 – 08.11.2025 | , overcrowding, transportation and mobility; Urban Inequality: Urban Poverty, Slums & squatter housing, access to housing and amenities; | **Minor Test** |
| 15 | 10.11.2025 – 15.11.2025 | Urban basic services; Quality of Urban Life; Urban Planning in India: National urban policy, | |
| 16 | 17.11.2025 – 22.11.2025 | Study of master plans of Delhi and Chandigarh; The Smart & sustainable cities. | |
| 17 | 24.11.2025 – 29.11.2025 | Revision | |

**Recommended Books/ E resources/ LMS:**


Michael, P. (2013) Urban Geography: A Global Perspective. Routledge, USA.
2. Cater, H. (1972) The Study of Urban Geography. Edward Arnold, London.
3. Hall, P. (1992) Urban and Regional Planning. Routledge, London.
4. Kundu, A. (1992) Urban Development and Urban Research in India. Khanna Publication, New Delhi.
5. Castells, M. (1977) The Urban Question: A Marxist Approach. MIT Press, Cambridge.
6. Bhattacharya, B. (1979) Urban Development in India. Shree Publishing House, New Delhi.
7. Khan & Moyer. Reading in urban Geography. Syllabus of M.Sc. Geography, Department of Geography, CBLU w.e.f. session 2020-


**Signature of the teacher concerned**

**Head of the Department**

# SMRJ Government College, Siwani (Bhiwani)

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**Session: 2025-26**

## *Lesson Plan*

## *(Department of Geography)*

**Teacher: Satpal Kumar** | **Course Type & Title: Fundamentals of Resource Geography**
**Class: BA With Major in Geography** | **Course Code: 24UN-GEO-102**
**Semester: 1st** | **Credits: 4**
**Maximum Marks: 100** | **Internal Assessment Marks: 30**
**End Term Exam Marks: 50** | **Practical Marks: 20**

**Course Outcomes:**

1. acquaint with nature, techniques and field of resource geography.
2. enhance knowledge about classification and development process of natural resources.
3. provide knowledge on location, conservation and management methods of resources for sustainable development.
4. provide knowledge about concepts, policies, problems and models of natural resource utilization.
5* attain skills in mapping and monitoring of land, water, forest and mineral resources.

| Sr. No. | Week/Month, 2025 | Unit/ Topic/ Chapter to be covered | Assignment/ Test/ Remarks, if any |
|---|---|---|---|
| 1 | 01.08.2025 – 02.08.2025 | Familiar with Syllabus | |
| 2 | 04.08.2025 – 09.08.2025 | Nature, scope, techniques and importance of resource geography. | |
| 3 | 11.08.2025 – 16.08.2025 | Concepts of resource: exploitation, accumulation, | |
| 4 | 18.08.2025 – 23.08.2025 | poverty and resource degradation. | Assignment |
| 5 | 25.08.2025 – 30.08.2025 | Classification of resources: renewable and nonrenewable, | |
| 6 | 01.09.2025 – 06.09.2025 | biotic and abiotic resources. | |
| 7 | 08.09.2025 – 13.09.2025 | Relationship between natural resources and development process. Role of technology in natural resource development. | |
| 8 | 15.09.2025 – 20.09.2025 | Distribution, utilization, problems and management of land and water resources. | |
| 9 | 22.09.2025 – 27.09.2025 | Distribution, utilization, problems and management of land and water resources. | |

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| 10 | 29.09.2025 – 04.10.2025 | Distribution, utilization, problems and management of forest resources. | |
| 11 | 06.10.2025 – 11.10.2025 | Distribution, utilization, problems and management of mineral resources. | |
| 12 | 13.10.2025 – 18.10.2025 | Models of natural resources process: Zimmermann's primitive | |
| 13 | 27.10.2025 – 01.11.2025 | Kirk's decision models. | |
| 14 | 03.11.2025 – 08.11.2025 | Sustainable resource development; Policies and challenges of natural resource management. | **Minor Test** |
| 15 | 10.11.2025 – 15.11.2025 | Sustainable resource development; Policies and challenges of natural resource management. | |
| 16 | 17.11.2025 – 22.11.2025 | Revision | |
| 17 | 24.11.2025 – 29.11.2025 | Revision | |

**Recommended Books/ E resources/ LMS:**


1. Barbier, EB (2005) Natural Resources and Economic Development, Cambridge University Press, Cambridge.
2. Bhatta, B (2011) Remote Sensing and GIS, Oxford University Press, New Delhi.
3. Borton, I and Kates, RW (1984) Readings in Resource Management and Conservation, University of Chicago Press, Chicago.
4. Bruce, M (1989) Geography and Resource Analysis, John Wiley and Son, New York.
5. Chiras, DD and Reganold, JP (2009) Natural Resource Conservation: Management fora Sustainable Future, Pearson, New Delhi.
6. Cutter SN, Renwich HL and Renwick W (1991) Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons, New York.
7. Gadgil M and Guha R (2005) The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press, USA.


**Signature of the teacher concerned**

**Head of the Department**

**SMRJ Government College, Siwani (Bhiwani)**
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**Session: 2025-26**

# *Lesson Plan*
# *(Department of Geography)*

**Teacher: Satpal Kumar**
**Class: BA Hons Geography**
**Semester:** 5th
**Maximum Marks: 100**
**End Term Exam Marks: 80**

**Course Type & Title: Urban Geography**
**Course Code:** 21UGEOH504
**Credits: 4**
**Internal Assessment Marks: 20**

**Course Outcomes:**

The objectives of the course are to understand the process of urbanization and origin, growth and classification of urban settlements with relevant theories and models.
It also aims to relate urbanization process and the evolution of urban system and examine the contemporary urban issues.

| Sr. No. | Week/Month, 2025 | Unit/ Topic/ Chapter to be covered | Assignment/ Test/ Remarks, if any |
|---|---|---|---|
| 1 | 01.08.2025 – 02.08.2025 | Familiar with Syllabus | |
| 2 | 04.08.2025 – 09.08.2025 | Urban Geography: Nature, Scope and Approaches; | |
| 3 | 11.08.2025 – 16.08.2025 | Development of Urban Geography and its Recent Trends, | |
| 4 | 18.08.2025 – 23.08.2025 | Evolution of City: Ancient, Medieval and Modern period | Assignment |
| 5 | 25.08.2025 – 30.08.2025 | Urban Space and its Characteristics | |
| 6 | 01.09.2025 – 06.09.2025 | Size and Spacing of Cities; Rank Size Rule; | |
| 7 | 08.09.2025 – 13.09.2025 | Primate City; Concept of Settlement Hierarchy; | |
| 8 | 15.09.2025 – 20.09.2025 | Christaller‟s Central Place Theory; Ecological Processes of Urban Growth; | |
| 9 | 22.09.2025 – 27.09.2025 | Urban Economy | **Assignment** |

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| 10 | 29.09.2025 – 04.10.2025 | Theories of City Structure: Concentric Zone Theory, Sector Theory | |
| 11 | 06.10.2025 – 11.10.2025 | Multiple Nuclei Theory, Functional Classification of Towns; | |
| 12 | 13.10.2025 – 18.10.2025 | City Region: Concept, Structure and Characteristics. | |
| 13 | 27.10.2025 – 01.11.2025 | Urbanization: Concept, Processes and Measures; | |
| 14 | 03.11.2025 – 08.11.2025 | Salient Features of Urbanization in Developed and Developing Countries, | **Minor Test** |
| 15 | 10.11.2025 – 15.11.2025 | Trends and Pattern of Urbanization in India, | |
| 16 | 17.11.2025 – 22.11.2025 | Major Urban Issues in Mega Cities of India. | |
| 17 | 24.11.2025 – 29.11.2025 | Revision | |

**Recommended Books/ E resources/ LMS:**


1. Michael, P. (2013) Urban Geography: A Global Perspective. Routledge, USA.
2. Cater, H. (1972) The Study of Urban Geography. Edward Arnold, London.
3. Hall, P. (1992) Urban and Regional Planning. Routledge, London.
4. Kundu, A. (1992) Urban Development and Urban Research in India. Khanna Publication, New Delhi.
5. Castells, M. (1977) The Urban Question: A Marxist Approach. MIT Press, Cambridge.
6. Bhattacharya, B. (1979) Urban Development in India. Shree Publishing House, New Delhi.
7. Khan & Moyer. Reading in urban Geography. Syllabus of M.Sc. Geography, Department of Geography, CBLU w.e.f. session 2020-


**Signature of the teacher concerned**

**Head of the Department**