

**CBCS SYLLABUS FOR  
UNDERGRADUATE COURSE IN  
GEOGRAPHY**

**UNIVERSITY OF NORTH BENGAL  
RAJA RAMMOHUNPUR  
DISTRICT: DARJEELING – 734013**

**ACADEMIC SESSION: 2021**

*(Important Note: The modified syllabus is to be implemented only from the Academic Session 2021. The students who are already enrolled in the previous academic sessions will continue to follow the previous syllabus)*

**MODIFIED UG CBCS SYLLABUS, DEPARTMENT OF GEOGRAPHY, UNIVERSITY OF NORTH BENGAL**  
**(To be implemented from the Academic Session 2021)**

<b>SEMESTER</b>	<b>COURSE</b>	<b>PAPER STATUS</b>	<b>PAPER CODE</b>	<b>ALPHA-NUMERIC CODE</b>	<b>PAPER</b>	<b>FULL MARKS</b>	<b>CREDITS</b>
<b>FIRST</b>	GEOTECTONIC	H	GEGRCC1	GEOH-CCHL-101	CC 1	75	6
	GEOMORPHOLOGY	H	GEGRCC2	GEOH-CCHL-102	CC 2	75	6
	PHYSICAL GEOGRAPHY	H	GEGRGE1	GEOH-GE1L-103	GE 1	75	6
	PHYSICAL GEOGRAPHY	G	GEGRDSC1	GEOP-DSCL-104	DSC 1	75	6
<b>SECOND</b>	HUMAN GEOGRAPHY	H	GEGRCC3	GEOH-CCHL-201	CC 3	75	6
	SETTLEMENT GEOGRAPHY	H	GEGRCC4	GEOH-CCHL-202	CC 4	75	6
	GEOGRAPHY OF INDIA	H	GEGRGE2	GEOH-GE2L-203	GE 2	75	6
	HUMAN GEOGRAPHY	G	GEGRDSC2	GEOP-DSCL-204	DSC2	75	6
<b>THIRD</b>	CLIMATOLOGY	H	GEGRCC5	GEOH-CCHL-301	CC 5	75	6
	STATISTICAL METHODS IN GEOGRAPHY	H	GEGRCC6	GEOH-CCHL-302	CC 6	75	6
	GEOGRAPHY OF INDIA	H	GEGRCC7	GEOH-CCHL-303	CC 7	75	6
	PHYSICAL GEOGRAPHY	H	GEGRGE3	GEOH-GE3L-304	GE 3	75	6
	SKILL ENHANCEMENT COURSE (Remote Sensing or Rural Development)	H	GEGRSEC1	GEOH-SECT-305	SEC 1	75	2
	REGIONAL DEVELOPMENT	G	GEGRDSC3	GEOP-DSCL-306	DSC 3	75	6
	SKILL ENHANCEMENT COURSE (Remote Sensing or Rural Development)	G	GEGRPSEC1	GEOP-SECT-307	SEC 1	75	2
<b>FOURTH</b>	ECONOMIC GEOGRAPHY	H	GEGRCC8	GEOH-CCHL-401	CC 8	75	6
	REGIONAL PLANNING & DEVELOPMENT	H	GEGRCC9	GEOH-CCHL-402	CC 9	75	6
	FIELDWORK & RESEARCH METHODOLOGY	H	GEGRCC10	GEOH-CCHL-403	CC 10	75	6
	GEOGRAPHY OF INDIA	H	GEGRGE4	GEOH-GE4L-404	GE 4	75	6
	SKILL ENHANCEMENT COURSE (GIS or Tourism Management)	H	GEGRSEC2	GEOH-SECT-405	SEC 2	75	2
	SPATIAL INFORMATION TECHNOLOGY	G	GEGRDSC4	GEOP-DSCL-406	DSC 4	75	6
	SKILL ENHANCEMENT COURSE (GIS or Tourism Management)	G	GEGRPSEC2	GEOP-SECT-407	SEC 2	75	2

<b>FIFTH</b>	BIOGEOGRAPHY & PEDOLOGY	H	GEGRCC11	GEOH-CCHL-501	CC 11	75	6
	REMOTE SENSING & GIS	H	GEGRCC12	GEOH-CCHL-502	CC 12	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Population Geography or Resource Geography)	H	GEGRDSE1	GEOH-DE1L-503	DSE 1	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Urban Geography or Agricultural Geography)	H	GEGRDSE2	GEOH-DE2L-504	DSE 2	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Disaster Management or Sustainable Development)	G	GEGRPDSE1	GEOP-DE1L-505	DSE 1	75	6
	PHYSICAL GEOGRAPHY	G	GEGRPGE1	GEOP-GE1L-506	GE 1	75	6
	SKILL ENHANCEMENT COURSE (Remote Sensing or Rural Development)	G	GEGRPSEC3	GEOP-SECL-507	SEC 3	75	2
<b>SIXTH</b>	EVOLUTION OF GEOGRAPHICAL THOUGHTS	H	GEGRCC13	GEOH-CCHL-601	CC 13	75	6
	DISASTER MANAGEMENT	H	GEGRCC14	GEOH-CCHL-602	CC 14	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Advanced Cartography or Political Geography)	H	GEGRDSE3	GEOH-DE3L-603	DSE 3	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Hydrology & Oceanography or Social & Cultural Geography)	H	GEGRDSE4	GEOH-DE4L-604	DSE 4	75	6
	DISCIPLINE SPECIFIC ELECTIVE (Climate Change; Vulnerability and Adaptation or Rural Development)	G	GEGRPDSE2	GEOP-DE2L-605	DSE 2	75	6
	GEOGRAPHY OF INDIA	G	GEGRPGE2	GEOP-GE2L-606	GE 2	75	6
	SKILL ENHANCEMENT COURSE (GIS or Tourism Management)	G	GEGRPSEC4	GEOP-SECL-607	SEC 4	75	2

# **FIRST SEMESTER**

**GEOGRAPHY HONOURS COURSE  
DISCIPLINE SPECIFIC CORE COURSE**

**COURSE CODE: GEOH-CCHL-101**

**Credit: 04**

**GEOTECTONIC**

1. Earth's tectonic and structural evolution with reference to geological timescale;
2. Earth: Interior structure and theory of Isostasy (Airy, Pratt, Bowie, Hayford, Heiskanen);
3. Earth Movements: Types of folds and faults; Mountain building theories (Kober and Holmes).
4. Concept & Theory: Continental Drift Theory; Plate Tectonics and sea floor spreading.

**PRACTICAL**

**Credit: 02**

1. Scales: Concepts, applications, merits and demerits; graphical construction of plain, comparative, diagonal and vernier scales;
2. Map Projections: Classification, properties, uses and limitations; Mathematical/Graphical construction of Polar Zenithal Stereographic Projection, Bonne's Projection, Polyconic Projection, Sinusoidal Projection and Mercator's Projections.

Practical Record: A project file covering all practical topics must be prepared.

**COURSECODE: GEOH-CCHL-102**

**Credit: 04**

**GEOMORPHOLOGY**

1. Geomorphology: Fundamental concepts of geomorphology;
2. Geomorphic processes: weathering, mass wasting, cycle of erosion (Davis and Penck);
3. Evolution of erosional and depositional landforms: fluvial, aeolian, glacial, coastal and karst;
4. Slope: Forms and processes; Theories of slope development (Davis, Penck and King).

**PRACTICAL**

**Credit: 02**

1. Topographical Map: Interpretation of the physical and cultural features of a topographical map (plateau/mountain); interpretation of relief profiles: superimposed, projected and composite; Slope Analysis after Wentworth; Relative Relief after Smith; Drainage density and drainage frequency; Transect chart.
2. Megascopic identification of rocks and minerals: granite, basalt, gneiss, pegmatite, limestone, shale, sandstone, phyllite, slate, marble, schist, quartzite, bauxite, calcite, chalcopryrite, feldspar, galena, haematite, magnetite, mica, quartz and talc.

Practical Record: A project file covering all practical topics must be prepared.

## Reading List

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi
2. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
10. Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic
11. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi
12. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
13. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
14. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
15. Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
16. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
17. Sarkar, A. (2015) Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi
18. Wooldridge S.W., Morgan, R.S. An Outline of Geomorphology: The Physical Basis of Geography, Orient Longman

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-101: Class Test**

**COURSE CODE: GEOH-CCHL-102: Class Test**

**GEOGRAPHY HONOURS COURSE  
GENERIC ELECTIVE**

**COURSE CODE: GEOH-GE1L-103**

**Credit: 04**

**PHYSICAL GEOGRAPHY**

1. Geotectonic: Origin and evolution of the earth (Nebular Hypothesis and Big Bang Theory), Interior structure of the earth; Wegener's Continental Drift theory and Plate Tectonic theory;
2. Rocks: Major types of rocks and their characteristics;
3. Geomorphic processes: Weathering and mass wasting;
4. Geomorphology: Erosional and depositional features of river, glacier and wind.

**PRACTICAL**

**Credit: 02**

1. Scale: Definition, classification, merits and demerits; construction of simple linear and comparative scale;
2. Map Projection: Definition, classification and graphical construction of Zenithal Gnomonic Projection (Polar Case); Cylindrical Equal Area Projection; Simple Conical Projection with one Standard Parallel.

**Reading List**

1. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
2. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
3. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
4. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
5. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Sarkar, A. (2015) Practical geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE GEOH-GE1L-103: Class Test**

**GEOGRAPHY PROGRAMME COURSE  
DISCIPLINE SPECIFIC CORE**

**COURSE CODE: GEOP-DSCL-104  
PHYSICAL GEOGRAPHY**

**Credits: 04**

1. Earth's interior with special reference to seismology;
2. Continental Drift and Plate Tectonics as a theory of global tectonics;
3. Folds and faults: Classification and surface expression;
4. Principal geomorphic agents; Classification and evolution of fluvial, coastal, aeolian and glacial landforms.

**PRACTICAL**

**Credits: 02**

1. Scale: definition, merits and demerits; construction of scale; plain (linear and comparative and diagonal);
2. Map Projection: Zenithal Gnomonic Projection (Polar Case), Cylindrical Equal Area Projection, Simple Conical Projection with one standard parallel, Sinusoidal Projection.

*Practical Record: A project file covering all practical topics must be prepared.*

**Reading list**

1. Billings, M.P. 1971. Structural Geology, Pearson.
2. Goudie, A.S. (Ed) 2004. Encyclopedia of Geomorphology, vol. 1 & 2, Routledge.
3. Gregory, K.J., Lewin, J. 2014. The Basics of Geomorphology: Key Concepts, Sage.
4. Harvey, A. 2012. Introducing Geomorphology: A Guide to Landforms and Processes, Dunedin Academic Press.
5. Kale, V.S., Gupta, A. 2001. Introduction to Geomorphology, Orient Longman.
6. Kearey, P., Klepeis, K.A., Vine, F.J. 2011. Global Tectonics, 3rd ed, Wiley-India.
7. Monkhouse, F.J. 1974. Principles of Physical Geography (2009-reprint), Platinum Publishers.
8. Selby, M.J. 1986. Earth's Changing Surface, Oxford University Press.
9. Strahler, A. 2016. Introducing Physical Geography, 6th ed, Wiley.
10. Summerfield, M.J. 2003. Global Geomorphology: An Introduction to the Study of landforms, Longman.
11. Farndon, J. 2012. The Illustrated Guide to Rocks & Minerals, Southwater.
12. Pillent, C. 2002. Smithsonian Handbooks: Rocks & Minerals, Dorling Kindersley.
13. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
14. Sen, P.K. 1989. Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and Hydrological Parameters, University of Burdwan
15. Sorrell, C.A. Rocks and Minerals: A Guide to Field Identification, St. Martin's Press.

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOP-DSCL-104: Class test**

# **SECOND SEMESTER**

**GEOGRAPHY HONOURS COURSE  
DISCIPLINE SPECIFIC CORE COURSE**

**COURSE CODE: GEOH-CCHL-201**

**Credit: 04**

**HUMAN GEOGRAPHY**

1. Defining Human Geography; Scope and content of Human Geography;
2. Space and society: cultural regions; race, language, religion and caste;
3. Growth and spatial distribution of population; population composition; Theory of Malthus; Population Policy of India, 2000;
4. Concept of population-resource relationship; Population resource regions of the world (Ackerman)

**PRACTICAL**

**Credit: 02**

1. Diagrammatic data presentation: isopleth (isotherm, isohyet and isobar); bar (simple, compound and composite); circles (pie graph, proportional circle and proportional divided circle);
2. Thematic Mapping Techniques: properties, uses and limitations; Choropleth, Chorochromatic, Dot and Sphere, Proportional Cubes.

Practical Record: A project file covering all practical topics must be prepared.

**COURSECODE: GEOH-CCHL-202**

**Credit: 04**

**SETTLEMENT GEOGRAPHY**

1. Settlements: Origin and growth of rural and urban settlements;
2. Types, patterns and morphology of rural settlements;
3. Trends and patterns of world urbanization (ancient, medieval and modern);
4. Theories of urban land use: Concentric Zone Theory; Sector Theory; Multiple Nuclei Theory

**PRACTICAL**

**Credit: 02**

1. Concept of levelling and surveying; Surveying by Prismatic Compass (closed traverse); Levelling by Dumpy Level along a given line by rise and fall and collimation method; Determination of height of an object with accessible and inaccessible base in the same vertical plane by Theodolite (transit);
2. Geological Map: Drawing of sections on uniclinal and folded structures depicting unconformity.

Practical Record: A project file covering all practical topics must be prepared.)

## Reading List

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
3. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
4. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
5. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York
6. Cuff J. D. and Mattson M. T., 1982: Thematic Maps: Their Design and Production, Methuen Young Books
7. Dent B. D., Torguson J. S., and Holder T. W., 2008: Cartography: Thematic Map Design (6<sup>th</sup> Edition), McGraw-Hill Higher Education
8. Gupta K. K. and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
9. Kraak M.-J. & Ormeling F., 2003: Cartography: Visualization of Geo-Spatial Data, Prentice-Hall.
10. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
11. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
12. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: Thematic Cartography and Geovisualization (3rd Edition), Prentice Hall.
13. Tyner J. A., 2010: Principles of Map Design, The Guilford Press.
14. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
15. Zamir Alvi, 1994: A Textbook of Surveying, Vikas Publishing House Pvt. Ltd. New Delhi

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-201: Tutorials**

**COURSE CODE: GEOH-CCHL-202: Seminar**

**GEOGRAPHY HONOURS  
GENERIC ELECTIVE**

**COURSE CODE: GEOH-GE2L-203**

**Credit: 04**

**GEOGRAPHY OF INDIA**

1. Physiography, climate, natural vegetation and soil;
2. Intensive farming (rice), plantation farming (tea and rubber);
3. Factors of industrial location, classification of industries, distribution of Iron and Steel industry, Cotton Textile industry;
4. Growth and spatial distribution of population; characteristics of the population (race, language, religion and caste).

**PRACTICAL**

1. Geological map: Uniclinal and folded structure with given dips;
2. Topographical maps: Interpretation of topographical map of India; relief, drainage, natural vegetation, settlement and transport & communication (plateau region); Transect Chart.

**Reading List**

1. Mandal R. B. (ed.), 1990: *Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.*
2. Sharma, T. C. 2003: *India - Economic and Commercial Geography.* Vikas Publ., New Delhi.
3. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
4. Singh, Jagdish 2003: *India; A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
5. Spate O. H. K. and Learmouth A. T. A., 1967: *India and Pakistan: A General and Regional*
6. *Geography*, Methuen.
7. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publishers, Jaipur & New Delhi.
8. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
9. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-GE2L-203: Class Test**

**GEOGRAPHY PROGRAMME COURSE  
DISCIPLINE SPECIFIC CORE**

**COURSE CODE: GEOP-DSCL-204**

**Credits: 04**

**HUMAN GEOGRAPHY**

1. Introduction: Definition, scope and content of Human Geography;
2. Cultural Regions; Race; language, religion and caste with reference to India;
3. Growth and spatial distribution of population with special reference to India;
4. Population-Resource Regions (Ackerman).

**PRACTICAL**

**Credits: 02**

1. Diagrammatic Data Presentation: Line, Simple Bar and Proportional Divided Circles;
2. Thematic Mapping Techniques: Choropleth, Chorochromatic.

*Practical Record: A project file covering all practical topics must be prepared.*

**References:**

1. Aoyama, Y., Murphy, J.T., Hanson, S. 2010. Key Concepts in Economic Geography, Sage.
2. Chandna, R.C. 2016. Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.
3. Coe N. M., Kelly P. F. and Young H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell. Fouberg, E.H., Murphy, A.B., de Blij H.J. 2015. Human Geography: People, Place, and Culture, 11th ed, Wiley.
4. Ghosh, S. 1998. Introduction to Settlement Geography, Sangam Books Ltd.
5. Gregory, D., Johnston, R., Pratt, G., Watts., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.
6. Knox, P.L., Marston, S.A. 2014. Human Geography: Places and Regions in Global Context, 6th ed, Pearson Education Limited.
7. Knox, P.L., McCarthy, L.M. 2011. Urbanization: An Introduction to Urban Geography, 3rd ed, Pearson Education Ltd.
8. Moseley, W.G., Perramond, E., Hapke, H.M., Laris, P. 2013. An Introduction to Human-Environment Geography: Local Dynamics and Global Processes, Wiley-Blackwell.
9. Norton, W. 2014. Human Geography, 8th ed, Oxford University Press.

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE GEOP-DSCL-204: Class test**

# **THIRD SEMESTER**

**GEOGRAPHY HONOURS COURSE  
DISCIPLINE SPECIFIC COURSE**

**COURSE CODE: GEOH-CCHL-301**

**Credit: 04**

**CLIMATOLOGY**

1. Atmospheric composition and structure; insolation and temperature: factors and distribution, heat budget, temperature inversion; concept of global warming;
2. Atmospheric pressure and winds: planetary winds, forces affecting winds, general circulation, jet streams; Monsoon: origin and mechanism (thermal and jet stream theory);
3. Atmospheric moisture: evaporation, humidity, condensation, precipitation types; climatic regions (Koppen);
4. Tropical cyclones; ENSO.

**PRACTICAL**

**Credit: 02**

1. Meteorological instruments: Recording of Maximum and Minimum thermometer, Hygrometer, Fortin's barometer;
2. Interpretation of Indian daily weather report (summer & winter case); Representation of climatic data by climographs (Griffith Taylor) and hythergraphs.

*Practical Record: A project file covering all practical topics must be prepared.*

**COURSECODE: GEOH-CCHL-302**

**Credit: 04**

**STATISTICAL METHODS IN GEOGRAPHY**

1. Significance of statistics in Geography;
2. Use of data in Geography: sources of data, techniques of data collection; scales of measurement (nominal, ordinal, interval, ratio);
3. Sampling; purpose of sampling; types of sampling (purposive, random, systematic and stratified);
4. Theoretical concepts of Correlation analysis and Regression analysis; Coefficient of Determination; significance; merits and demerits, difference between correlation and regression analysis.

**PRACTICAL**

**Credit: 02**

1. Tabulation of data; frequency distribution table, class group and class interval; Descriptive statistics: Quartiles; Measures of Central Tendency: Mean, Median and Mode; Measures of Dispersion: Quartile Deviation, Mean Deviation, Standard Deviation, Variance and Coefficient of Variation;
2. Association and Correlation: Spearman's Rank Correlation, Karl Pearson's Coefficient of Correlation, and Simple Linear Regression.

*Practical Record: A project file covering all practical topics must be prepared.*

### Reading List

1. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
3. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
7. Berry B. J. L. and Marble D. F. (eds.): Spatial Analysis – A Reader in Geography
8. Ebdon D., 1977: Statistics in Geography: A Practical Approach.
9. Hammond P. and McCullough P. S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press
10. King L. S., 1969: Statistical Analysis in Geography, Prentice-Hall. 5. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
11. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
12. Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi
13. Silk J., 1979: Statistical Concepts in Geography, Allen and Unwin, London.
14. Spiegel M. R.: Statistics, Schaum's Outline Series.
15. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.

### **COURSE CODE: GEOH-CCHL-303**

**Credit: 04**

### **GEOGRAPHY OF INDIA**

1. Physical: Physiographic divisions, soil, vegetation, climate (classification and distribution);
2. Economic: Mineral and power resources distribution and utilization of iron ore, coal, petroleum; agricultural production and distribution of rice and wheat; Iron & Steel Industry, Cotton Textile Industry; Small scale industries; Information Technology;
3. Social: Spatial distribution of population by race, caste, religion, language and tribes;
4. Regionalization of India: Physiographic (R.L. Singh), Economic (P. Sengupta); Agro-climatic divisions of India.

### **PRACTICAL**

**Credit: 02**

1. Ombothemic graphs of five weather stations; Ergograph
2. Decadal growth rate of population; Measures of Inequality: Lorenz Curve and Gini's Coefficient.

*Practical Record: A project file covering all practical topics must be prepared.*

### Reading List

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Perspective.

Vol. 3 – Indian Perspective.

4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalization of India, Census of India
5. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
7. Singh, Jagdish 2003: India; A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, Rawat Publishers, Jaipur & New Delhi.
10. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-301: Class Test**

**COURSE CODE: GEOH-CCHL-302: Seminar**

**COURSE CODE:\* GEOH-CCHL-303: Report writing**

*(Report will be an overview of \*syllabus topic. The students will work in groups as directed by the guide teacher(s). Word limit will be 1000 words.*

*It must be hand-written)*

**GEOGRAPHY HONOURS COURSE  
GENERIC ELECTIVE**

**COURSE CODE: GEOH-GE3L-304**

**Credit: 04**

**PHYSICAL GEOGRAPHY**

1. Geotectonic: Origin and evolution of the earth(Nebular Hypothesis and Big Bang Theory), Interior structure of the earth; Wegener's Continental Drift theory and Plate Tectonic theory;
2. Rocks: Major types of rocks and their characteristics;
3. Geomorphic processes: Weathering and mass wasting;
4. Geomorphology: Erosional and depositional features of river, glacier and wind.

**PRACTICAL**

**Credit: 02**

1. Scale: Definition, classification, merits and demerits; construction of simple linear and comparative scale;
2. Map Projection: Definition, classification and graphical construction of Zenithal Gnomonic Projection (Polar Case); Cylindrical Equal Area Projection; Simple Conical Projection with one Standard Parallel.

**Reading List**

1. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
2. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
3. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
4. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
5. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-GE3L-304: Class Test**

**GEOGRAPHY HONOURS COURSE**  
**SKILL ENHANCEMENT COURSE - SEC (ANY ONE)**  
*(Students will have to choose any one from the given course)*

**COURSE CODE: GEOH-SECT-305**

**Credit: 04**

**REMOTE SENSING**

1. Remote Sensing: Definition and development; platforms and types; photogrammetry;
2. Satellite Remote Sensing: Principles, EMR Interaction with atmosphere and earth surface; satellites (Landsat and IRS); sensors;
3. Visual Satellite Image Interpretation;
4. Application of Remote Sensing in Land use/Land cover mapping.

**Reading List**

1. Bhatta, B. (2008) Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press
3. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
4. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
5. Lillesand T. M., Kiefer R. W. and Chapman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
6. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
7. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
8. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
9. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.

**RURAL DEVELOPMENT**

**Credit: 02**

1. Rural Development: Concept, basic elements, measures of level of rural development;
2. Paradigms of rural development: Gandhian approach to rural development; Lewis model of economic development;
3. Major Rural Development Programmes in India: PMGSY, SGSY, MNREGA, Jan Dhan Yojana and NABARD;
4. Rural Governance: Panchayati Raj System and rural development policies.

**Reading list:**

1. Gilg, A.W. 1985. An Introduction to Rural Geography, Edwin Arnold.
2. Krishnamurthy, J. 2000. Rural Development: Problems and Prospects, Rawat Publications.
3. Lee, D.A., Chaudhuri, D.P. (Eds) 1983. Rural Development and State, Methuen Publishing.
4. Misra, R.P., Sundaram, K.V. (Eds) 1979. Rural Area Development: Perspectives and Approaches, Sterling Publishers.
5. Misra, R.P. (Ed.) 1985. Rural Development: Capitalist and Socialist Paths, Vol-1, Concept Publishing.
6. Ramachandran, H., Guimaraes, J.P.C. 1991. Integrated Rural Development in Asia: Learning from Recent Experience, Concept Publishing.

8. Robb, P. (Ed.) 1983. Rural South Asia: Linkages, Change and Development, Curzon Press.
9. Singh, K., Shishodia, A. 2016. Rural Development: Principles, Policies, and Management, 4th edition, Sage.
10. Wanmali, S. 1992. Rural Infrastructure, the Settlement System and Development of the
11. Regional Economy in Southern India, International Food Policy Research Institute.
12. Yugandhar, B.N., Mukherjee, N.(Eds) 1991. Studies in Village India: Issues in Rural
13. Development, Concept Publishing.

**GEOGRAPHY PROGRAMME COURSE  
DISCIPLINE SPECIFIC CORE**

**COURSECODE: GEOP-DSCL-306**

**Credits: 04**

**REGIONAL DEVELOPMENT**

1. Definition, types of Regional planning: Formal, Functional, and Planning regions;
2. Regional Imbalances and problems of functional regions;
3. Strategies; Models for Regional Planning: Growth Pole Model of Perroux;
4. Problem Regions and Regional Planning: Backward Regions and Regional Plans: Special Area Development Plans in India.

**PRACTICAL**

**Credits: 02**

1. Interpretation of Indian Topographical maps: plains/plateaus; scale 1:50000 (Broad physiographic divisions, drainage, natural vegetation, settlement, transport and communication, transect chart);
2. Geological maps: Uniclinal and folded structures with given dips.

*Practical Record: A project file covering all practical topics must be prepared.*

**Reading List**

1. Adell, Germán (1999) Literature Review: Theories and Models Of The Peri-Urban Interface: A Changing Conceptual Landscape, Peri-urban Research Project Team, Development Planning Unit, University College London
2. Bhatt, L.S. (1976) Micro Level Planning in India. KB Publication, Delhi
3. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
4. Dreze J. and A. Sen, Indian Development: Select Regional Perspectives (Oxford: University Press, 1996).
5. Sen, Amritya (2000) Development as Freedom. Random House, Toronto
6. Raza, M., Ed. (1988). Regional Development. Contributions to Indian Geography. New Delhi, Heritage Publishers.
7. Rapley, John (2007) Understanding Development: Theory and Practice in the 3rd World. Lynne Rienner, London.
8. Schmidt-Kallert, Einhard (2005) A Short Introduction to Micro-Regional Planning, Food and Agriculture Organization of the United Nations (FAO)
9. Sdhasuk Galina and P Sengupta (1967): Economic Regionalization of India, Census of India

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOP-DSCL-306: Project report on any rural issue**

**Project Report:**

1. *Students will prepare report based on primary and secondary data in groups as decided by the Guide teacher(s).*
2. *The word count of the report should be between 5000 to 6000 excluding figures, tables, photographs, maps, references and appendices.*
3. *One typed copy of the report on A4 size paper should be submitted in soft/hard binding.*

**GEOGRAPHY PROGRAMME COURSE**  
**SKILL ENHANCEMENT COURSE**

*Students will have to choose any one from the given course*

**COURSE CODE: GEOP-SECT-307**

**Credit: 04**

**REMOTE SENSING**

1. Remote Sensing: Definition and development; platforms and types; photogrammetry;
2. Satellite Remote Sensing: Principles, EMR Interaction with atmosphere and earth surface; satellites (Landsat and IRS); sensors;
3. Visual Satellite Image Interpretation;
4. Application of Remote Sensing in Land use/Land cover mapping.

**Reading List**

1. Bhatta, B. (2008) Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press
3. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall
4. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
5. Lillesand T. M., Kiefer R. W. and Chapman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
6. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing & Spatial Information Sciences CRC Press, Taylor and Francis, London
7. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
8. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
9. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.

**RURAL DEVELOPMENT**

**Credit: 02**

1. Rural Development: Concept, basic elements, measures of level of rural development;
2. Paradigms of rural development: Gandhian approach to rural development; Lewis model of economic development;
3. Major Rural Development Programmes in India: PMGSY, SGSY, MNREGA, Jan Dhan Yojana and NABARD;
4. Rural Governance: Panchayati Raj System and rural development policies.

**Reading list:**

1. Gilg, A.W. 1985. An Introduction to Rural Geography, Edwin Arnold.
2. Krishnamurthy, J. 2000. Rural Development: Problems and Prospects, Rawat Publications.
3. Lee, D.A., Chaudhuri, D.P. (Eds) 1983. Rural Development and State, Methuen Publishing.
4. Misra, R.P., Sundaram, K.V. (Eds) 1979. Rural Area Development: Perspectives and Approaches, Sterling Publishers.
5. Misra, R.P. (Ed.) 1985. Rural Development: Capitalist and Socialist Paths, Vol-1, Concept Publishing.

7. Ramachandran, H., Guimaraes, J.P.C. 1991. Integrated Rural Development in Asia: Learning from Recent Experience, Concept Publishing.
8. Robb, P. (Ed.) 1983. Rural South Asia: Linkages, Change and Development, Curzon Press.
9. Singh, K., Shishodia, A. 2016. Rural Development: Principles, Policies, and Management, 4th edition, Sage.
10. Wanmali, S. 1992. Rural Infrastructure, the Settlement System and Development of the
11. Regional Economy in Southern India, International Food Policy Research Institute.
12. Yugandhar, B.N., Mukherjee, N.(Eds) 1991. Studies in Village India: Issues in Rural
13. Development, Concept Publishing.

# **FOURTH SEMESTER**

## **GEOGRAPHY HONOURS COURSE DISCIPLINE SPECIFIC CORE**

**COURSE CODE: GEOH-CCHL-401**

**Credit: 04**

### **ECONOMIC GEOGRAPHY**

1. Introduction: Concept of economic activity; factors affecting location of economic activity with special reference to agriculture (Von Thunen theory), Industry (Weber's theory);
2. Primary activities: subsistence and commercial agriculture and lumbering;
3. Secondary activities: Manufacturing Industries with reference to India (Aluminum, Tea), Special Economic Zones with reference to India;
4. Tertiary activities: transport (railways and highways of India); International trade (WTO & BRICS)

### **PRACTICAL**

**Credit: 02**

1. Transport network analysis: connectivity (alpha, beta, gamma, theta and eta indices) and accessibility (Accessibility zoning using Detour Index);
2. Representation of state wise variation in occupational structure and work participation rate using proportional circles and proportional divided circles; Kendall's Ranking Co-efficient method.

*Practical Record: A project file covering all practical topics must be prepared.*

### **Reading List**

1. Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey
2. Coe N. M., Kelly P. F. and Young H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
3. Hodder B. W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
5. Wheeler J. O., 1998: Economic Geography, Wiley.
6. Durand L., 1961: Economic Geography, Crowell.
7. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
8. Willington D. E., 2008: Economic Geography, Husband Press
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford

**COURSE CODE: GEOH-CCHL-402**

**Credit: 04**

**REGIONAL PLANNING AND DEVELOPMENT**

1. Definition of region, evolution and types of regional planning: formal, functional, and planning regions and regional planning; need for regional planning; **regional** imbalances;
2. Choice of a region for planning: Characteristics of an ideal planning region; delineation of planning region; Regionalization of India for planning (Agro Ecological Zones);
3. Theories and Models for regional planning: Growth Pole Model of Perroux; Myrdal and Rostow; Growth Foci Model (R. P. Mishra);
4. Measuring development: Indicators (economic, social and environmental); Human Development Index.

**PRACTICAL**

**Credit: 02**

1. Delineation of formal regions by weighted index method; Delineation of functional regions by breaking point analysis; Sopher Index;
2. Measuring inequality by Location Quotient; Nearest Neighbour Test for clustering and regularity.

*Practical Record: A project file covering all practical topics must be prepared.*

**Reading List**

1. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
2. Claval P.L, 1998: An Introduction to Regional Geography, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts.
4. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.
5. Gore C. G., Köhler G., Reich U.P. and Ziesemer T., 1996: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention, Metropolis- Verlag, Marburg.
6. Haynes J., 2008: Development Studies, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: The Organization of Space in Developing Countries, MIT Press, Massachusetts.
8. Peet R., 1999: Theories of Development, The Guilford Press, New York.
9. UNDP 2001-04: Human Development Report, Oxford University Press.
10. World Bank 2001-05: World Development Report, Oxford University Press

**COURSECODE: GEOH-CCHL-403**

**Credit: 04**

**FIELD WORK AND RESEARCH METHODOLOGY**

1. Research in Geography: Components, objectives, types and stages of research
2. Field work in geographical studies: Role, value and ethics of field-work;
3. Field techniques: merits, demerits and selection of the appropriate technique; observation (participant and non-participant), questionnaires and schedules (open, closed, structured and non-structured); interview with special focus on focus group discussions;
4. Defining research problems; research design and hypothesis.

**PRACTICAL (Field Survey)**

**Credit: 02**

1. Preparation of questionnaire/schedule on rural/urban; physical/cultural aspects;
2. Use of field tools: Collection of data for physical or socio-economic surveys based on the above questionnaire/schedules;
3. Designing the field report: aims, objectives; analysis; interpretation and report writing.

**Project Report**

1. *Students will prepare a field report based on primary and secondary data collected during field work within India*
2. *The duration of the field work should not exceed 10 days.*
3. *The word count of the report should be 10,000 to 12,000 excluding figures, tables, photographs, maps, references and appendices.*
4. *One typed copy of the report on A4 size paper should be submitted in soft/hard binding.*

**Reading List**

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage Publications.
2. Dikshit, R. D. 2003. The Art and Science of Geography: Integrated Readings. Prentice-Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Pubs. Co., New Delhi.
5. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Pubs. Co., New Delhi
6. Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2(2001).
8. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
9. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-401: Class Test**

**COURSE CODE: GEOH-CCHL-402: Class Test**

**COURSE CODE: GEOH-CCHL-403: Class Test**

**GEOGRAPHY HONOURS**  
**SKILL ENHANCEMENT COURSE**

*Students will have to choose any one from the given course*

**COURSECODE: GEOH-SECT-405**

**Credit: 02**

**GEOGRAPHICAL INFORMATION SYSTEM**

1. Geographical Information System (GIS): Definition and Components;
2. Global Positioning System (GPS): Principles and uses;
3. GIS Data Structures: Types (spatial and non-spatial), raster and vector data structure; GIS Data Analysis: Input; geo-referencing; editing and output;
4. Application of GIS: Land use mapping; urban sprawl analysis; forests monitoring.

**Reading List**

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg. 41
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
3. Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
4. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
5. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
6. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
7. Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

**TOURISM MANAGEMENT**

**Credit: 02**

1. Tourism: Concepts; geographical elements of tourism by Robinson; Peter's Inventory;
2. Types of tourism: Heritage tourism, Cultural tourism, Medical tourism; Home stay tourism and Ecotourism;
3. Recent Trends of Tourism: International and domestic; Case studies of Himalayas with special reference to North Bengal and coastal areas with special reference to South Bengal;
4. National Tourism Policy of India, 2007.

**Reading List:**

1. Boniface, B., Cooper, R., Cooper, C. 2016. Worldwide Destinations: The Geography of Travel and Tourism, vol. 1, 7th ed, Routledge.
2. Edgell, D.L., Swanson, J. 2013. Tourism Policy and Planning: Yesterday, Today, and Tomorrow, Routledge.
3. Fennell, D.A. 2014. Ecotourism, 4th ed, Routledge.
4. Hall, C.M., Lew, A.A. 2009. Understanding and Managing Tourism Impacts: An Integrated Approach, Routledge.

5. Hall, C.M., Page, S.J. 2014. *The Geography of Tourism and Recreation: Environment, Place and Space* 4th ed, Routledge.
6. Honey, M. 2008. *Ecotourism and Sustainable Development*, Second Edition: Who Owns Paradise? 2nd ed, Island Press.
7. Kale, V.S. (Ed) 2017. *Geomorphology of India*, Indian Institute of Geomorphologists.
8. Lew, A., Hall, C.M., Timothy, D.J. 2008. *World Geography of Travel and Tourism: A Regional Approach*, Butterworth-Heinemann.
9. Mason, P. 2017. *Geography of Tourism: Image, Impacts and Issues*, Good fellow Publishers.
10. Mowforth, M., Munt, I. 2015. *Tourism and Sustainability: Development, globalisation and new tourism in the Third World*, 4th ed, Routledge.
11. Var, T., Gunn, C. *Tourism Planning: Basics, Concepts, Cases*, 4th ed, Routledge.
12. Velvet, N. 2017. *An Introduction to the Geography of Tourism*, 2nd ed, Rowman & Littlefield Publishers.
13. Williams, S., Lew, A.A. 2014. *Tourism Geography: Critical Understandings of Place, Space and Experience*, 3rd ed, Routledge.
14. Wilson, J. 2017. *The Routledge Handbook of Tourism Geographies*, Routledge.

**GEOGRAPHY PROGRAMME COURSE  
DISCIPLINE SPECIFIC CORE**

**COURSE CODE: GEOP-DSCL-406**

**Credits: 04**

**SPATIAL INFORMATION TECHNOLOGY**

1. Introduction: definitions, concept and historical development;
2. Spatial Information/Data: Web data sources; registration and projection; data structures; data interpolation.
3. Functions of Spatial information system: Information retrieval; Topological modelling; networks; overlay; data output.
4. Application of Spatial Information Technology.

**PRACTICAL**

**Credit: 02**

1. Identification of broad physical and cultural features from aerial photographs using pocket stereoscope;
2. Statistical techniques: Measures of central tendency and measures of dispersion (absolute and relative measures).

*Practical Record: A project file covering all practical topics must be prepared.*

**Reading List**

1. C. Esperança and H. Samet, An overview of the SAND spatial database system, to appear in Communications of the ACM, 1997. <http://www.cs.umd.edu/~hjs/pubs/sandprog.ps.gz>
2. G. H. J. Alt and H. Samet, Ranking in Spatial Databases in Advances in Spatial Databases — 4th Symposium, SSD'95, M. J. Egenhofer and J. R. Herring, Eds., Lecture Notes in Computer Science 951, Springer-Verlag, Berlin, 1995, 83-95. <http://www.cs.umd.edu/~hjs/pubs/incnear.ps>
3. H. Samet, Spatial Data Structures in Modern Database Systems: The Object Model, Interoperability, and Beyond, W. Kim, Ed., Addison-Wesley/ACM Press, 1995, 361-385. <http://www.cs.umd.edu/~hjs/pubs/kim.ps>
4. H. Samet, Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS, Addison-Wesley, Reading, MA, 1990. ISBN 0-201-50300-0.
5. H. Samet, The Design and Analysis of Spatial Data Structures, Addison-Wesley, Reading, MA, 1990. ISBN 0-201-50255-0.
6. H. Samet and W. G. Aref, Spatial Data Models and Query Processing in Modern Database Systems: The Object Model, Interoperability, and Beyond, W. Kim, Ed., Addison-Wesley/ACM Press, 1995, 338-360. <http://www.cs.umd.edu/~hjs/pubs/kim2.ps>
7. C. D. Tomlin, Geographic Information Systems and Cartographic Modeling, Prentice-Hall, Englewood Cliffs, NJ, 1990. ISBN 0-13-350927-3.

**COURSE CODE: GEOP-DSCL-406: Class Test**

**GEOGRAPHY PROGRAMME COURSE**  
**SKILL ENHANCEMENT COURSE**

*Students will have to choose any one from the given courses*

**COURSE CODE: GEOP-SECT-407**

**Credit: 02**

**GEOGRAPHICAL INFORMATION SYSTEM**

1. Geographical Information System (GIS): Definition and Components;
2. Global Positioning System (GPS): Principles and uses;
3. GIS Data Structures: Types (spatial and non-spatial), raster and vector data structure; GIS Data Analysis: Input; geo-referencing; editing and output;
4. Application of GIS: Land use mapping; urban sprawl analysis; forests monitoring.

**Reading List**

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg. 41
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
3. Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
4. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
5. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
6. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
7. Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

**TOURISM MANAGEMENT**

**Credit: 02**

1. Tourism: Concepts; geographical elements of tourism by Robinson; Peter's Inventory;
2. Types of tourism: Heritage tourism, Cultural tourism, Medical tourism; Home stay tourism and Ecotourism;
3. Recent Trends of Tourism: International and domestic; Case studies of Himalayas with special reference to North Bengal and coastal areas with special reference to South Bengal;
4. National Tourism Policy of India, 2007.

**Reading List:**

1. Boniface, B., Cooper, R., Cooper, C. 2016. Worldwide Destinations: The Geography of Travel and Tourism, vol. 1, 7th ed, Routledge.
2. Edgell, D.L., Swanson, J. 2013. Tourism Policy and Planning: Yesterday, Today, and Tomorrow, Routledge.
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10. Lew, A., Hall, C.M., Timothy, D.J. 2008. World Geography of Travel and Tourism: A Regional Approach, Butterworth-Heinemann.
11. Mason, P. 2017. Geography of Tourism: Image, Impacts and Issues, Good fellow Publishers.
12. Mowforth, M., Munt, I. 2015. Tourism and Sustainability: Development, globalisation and new tourism in the Third World, 4th ed, Routledge.
13. Var, T., Gunn, C. Tourism Planning: Basics, Concepts, Cases, 4th ed, Routledge.
14. Velvet, N. 2017. An Introduction to the Geography of Tourism, 2nd ed, Rowman & Littlefield Publishers.
15. Williams, S., Lew, A.A. 2014. Tourism Geography: Critical Understandings of Place, Space and Experience, 3rd ed, Routledge.
16. Wilson, J. 2017. The Routledge Handbook of Tourism Geographies, Routledge.

**GEOGRAPHY HONOURS  
GENERIC ELECTIVE**

**COURSE CODE: GEOH-GE4L-404**

**Credit: 04**

**GEOGRAPHY OF INDIA**

1. Physiography, climate, natural vegetation and soil;
2. Intensive farming (rice), plantation farming (tea and rubber);
3. Factors of industrial location, classification of industries, distribution of Iron and Steel industry, Cotton Textile industry;
4. Growth and spatial distribution of population; characteristics of the population (race, language, religion and caste).

**PRACTICAL**

**Credit: 02**

1. Geological map: Uniclinal and folded structure with given dips;
2. Topographical maps: Interpretation of topographical map of India; relief, drainage, natural vegetation, settlement and transport & communication (plateau region); Transect Chart.

**Reading List**

1. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Perspective.
2. Vol. 3 – Indian Perspective.
3. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
4. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
5. Singh, Jagdish 2003: India; A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
6. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
8. Tirtha, Ranjit 2002: Geography of India, Rawat Publishers, Jaipur & New Delhi.
9. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan, Allahabad
10. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-GE4L-404: Class Test**

# **FIFTH SEMESTER**

**GEOGRAPHY HONOURS**  
**DISCIPLINE SPECIFIC CORE COURSE -**

**COURSE CODE: GEOH-CCHL-501**

**Credit: 04**

**BIOGEOGRAPHY & PEDOLOGY**

1. Pedology: Factors of soil formation; soil forming processes; structure & texture; soil profile;
2. Soil Fertility: macronutrients; micronutrients; classification of soil (USDA); soil erosion and conservation;
3. Biodiversity: Concepts, types and significance; Biomes (savanna, equatorial and desert).
4. Ecosystem: Concept, structure and functions; trophic levels; food web, food chain and ecological pyramid;

**PRACTICAL**

**Credit: 02**

1. Climograph (USDA – type and Foster type) for savanna, desert and equatorial biomes
2. Soil Test using Soil Testing Kit (pH, N, P & K); Soil Moisture

**Reading List**

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: Principals of Environmental Science: Inquiry and Applications, Tata McGraw Hill, New Delhi.
3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson Brooks Cole, Singapore.
6. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in North western Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
8. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
9. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan, Allahabad.
10. UNEP, 2007: Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
12. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford & IBH Pub..

**COURSE CODE: GEOH-CCHL-502****Credit: 04****REMOTE SENSING AND GIS**

1. Remote Sensing and GIS: Definition and components, development, platforms and types;
2. Aerial Photography and Satellite Remote Sensing: principles, types and geometry of aerial photograph; principles of remote sensing, EMR interaction with atmosphere and earth surface; satellites (Landsat and IRS) and sensors;
3. GIS Data Structures: Types (spatial and Non-spatial), raster and vector data structure;
4. Interpretation and application of Remote Sensing and GIS: Land use/Land Cover; urban sprawl analysis; forests monitoring.

**PRACTICAL****Credit: 02**

1. Air photo interpretation (using pocket stereoscope); and satellite imagery interpretation (manual);
2. Image Processing, Classification (supervised & unsupervised); Geo-referencing, Editing and Output, Overlays.

**Practical Record**

A project file consisting of two exercises will be done from aerial photos and satellite images (scale, orientation and interpretation) and three exercises using any of the following software: Map Info/Global Mapper/QGIS/ERDAS/ArcGis

**Reading List**

1. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
2. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
3. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
5. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
6. Rees W. G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.
8. Wolf P. R. and Dewitt B. A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw-Hill.
9. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-501: Seminar**

**COURSE CODE: GEOH-CCHL-502: Class Test**

**GEOGRAPHY HONOURS**  
**DISCIPLINE SPECIFIC ELECTIVE**

*(Students will have to choose any two courses: Population Geography or Resource Geography and Urban Geography or Agricultural Geography)*

**COURSE CODE: GEOH-DE1L-503**

**Credit: 04**

**POPULATION GEOGRAPHY**

1. Nature and scope; sources of data with special reference to India (Census, Vital Statistics and NSSO);
2. Population size, distribution and growth: Determinants and patterns; Theories of population; (Demographic Transition Theory; Optimum Population Theory; Everett Lee's Theory of Migration);
3. Population dynamics: Fertility and mortality (determinants and measures); migration (causes and consequences);
4. Population composition and characteristics: age-sex composition; rural and urban composition; literacy; contemporary issues: declining sex ratio, malnutrition and unemployment (with reference to India)

**PRACTICAL**

**Credit: 02**

1. Population projection by arithmetic method; Population density mapping for India;
2. Measures of Fertility (Crude Birth Rate, General Fertility Rate, Age Specific Fertility Rate, Total Fertility Rate); Mortality (Crude Death Rate; Age Specific Death Rate, Infant Mortality Rate).

**Reading List**

1. Barrett H. R., 1995: Population Geography, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House.
3. Chandna R. C., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
5. Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.
6. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth in the 21st Century, Earthscan
7. Newbold K. B., 2009: Population Geography: Tools and Issues, Rowman and Littlefield Publishers.
8. Pacione M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
9. Wilson M. G. A., 1968: Population Geography, Nelson.

**RESOURCE GEOGRAPHY****Credit: 04**

1. Natural Resource: Concept and classification;
2. Distribution, utilization, problems and management of land resources and water resources;
3. Distribution, utilization, problems and management of forests and energy resources;
4. Appraisal and conservation of natural resources, sustainable resource development.

**PRACTICAL****Credit: 02**

1. Preparation of landuse/landcover map;
2. Computing Human Development Index: comparative decadal change of Indian states.

**Reading List**

1. I. Cutter S. N., Renwick H. L. and Renwick W., 1991: Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons
2. 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.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: Resources, Society and Environmental Management, Paul Chapman, London.
5. Klee G., 1991: Conservation of Natural Resources, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: Environmental Resources, John Wiley and Sons, New York.
7. Mitchell B., 1997: Resource and Environmental Management, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: Environment, Resources and Conservation, Cambridge University Press, New York.
9. Rees J., 1990: Natural Resources: Allocation, Economics and Policy, Routledge, London.

**COURSECODE: GEOH-DE2L-504****Credit: 04****URBAN GEOGRAPHY**

1. Urban geography: Introduction, nature and scope;
2. Patterns of urbanization in developed and developing countries;
3. Functional classification of cities: qualitative and quantitative methods (F.S, Hudson, C.D. Harris, Asok Mitra);
4. Urban Issues: problems of housing, slums, civic amenities (water and transport); urban heat island; Case studies of major urban centres (statutory) in North Bengal.

**PRACTICAL****Credit: 02**

1. Hierarchy of urban settlements: Rank-size rule;
2. State-wise variation and trends of urbanization; Temporal analysis of urban growth using census data of India.

### Reading List

1. Fyfe N. R. and Kenny J. T., 2005: The Urban Geography Reader, Routledge.
2. Graham S. and Marvin S., 2001: Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition, Routledge.
3. Hall T., 2006: Urban Geography, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
5. Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall New York.
6. Knox P. L. and Pinch S., 2006: Urban Social Geography: An Introduction, Prentice-Hall.
7. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor and Francis.
8. Ramachandran R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
9. Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi
10. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
11. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks and resilience in Asian megacities. Advances in Geographical and Environmental Studies, Springer

### AGRICULTURAL GEOGRAPHY

**Credit: 04**

1. Agricultural Geography: nature and scope; Origin and dispersion of agriculture; Land capability and land suitability;
2. Determinants of Agriculture: Physical, socio-economic; technological and institutional;
3. Agricultural Regions of India: Agro-ecological & Crop Combination Regions;
4. Agricultural Systems of the world (Whittlesey's classification) and Agricultural land use model (Von Thunen's modification and relevance), Agricultural revolutions in India: Green, White and Blue.

### PRACTICAL

**Credit: 02**

1. Crop Combination Methods (Weaver, Rafulla and Doi);
2. Measurement of crop efficiency (Bhatia); Measurement of crop concentration index (Jasbir Singh); measurement of crop diversification by ICAR.

### Reading List

1. Basu, D.N., and Guha, G.S., 1996: Agro-Climatic Regional Planning in India, Vol. I & II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, 1992: Agriculture in the City Countryside, Belhaven Press, London.
3. Burger, A., 1994: Agriculture of the World, Aldershot, Avebury.
4. Grigg, D.B., 1984: Introduction to Agricultural Geography, Hutchinson, London.
5. Ilbery B. W., 1985: Agricultural Geography: A Social and Economic Analysis, Oxford University Press.
6. Mohammad, N., 1992: New Dimension in Agriculture Geography, Vol. I to VIII, Concept Pub., New Delhi.

7. Roling, N.G., and Wageruters, M.A.E.,(ed.) 1998: Facilitating Sustainable Agriculture, Cambridge University Press, Cambridge.
8. Shafi, M., 2006: Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi
9. Singh, J., and Dhillon, S.S., 1984: Agricultural Geography, Tata McGraw Hill, New Delhi.
10. Tarrant J. R., 1973: Agricultural Geography, David and Charles, Devon.

***Important Note: Continuing evaluation for all Discipline Specific Elective will be Class Test***

**GEOGRAPHY PROGRAMME COURSE**  
**DISCIPLINE SPECIFIC ELECTIVE**

*(Students will choose either Disaster Management or Sustainable Management)*

**COURSECODE: GEOP-DE1L-505**

**Credits: 04**

**DISASTER MANAGEMENT**

1. Disasters: definition and concepts: hazards, disasters; risk and vulnerability; classification;
2. Disasters in India: (a) flood: causes, impact, distribution and mapping; landslide: causes, impact, distribution and mapping; drought: causes, impact, distribution and mapping;
3. Disasters in India: (b) earthquake and tsunami: causes, impact, distribution and mapping; cyclone: causes, impact, distribution and mapping;
4. Response and mitigation to disasters: mitigation and preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management.

**PRACTICAL**

**Credits: 02**

Project report based on any one field based case study among the following disasters:

- a) Flood
- b) Landslide
- c) Human induced disaster: fire and industrial accidents

**Practical Record**

1. Students will prepare a report based on primary and secondary data collected during fieldwork.
2. The word count of the report should be 5000 to 6000 words, excluding figures, tables, photographs, maps, references and appendices.
3. One typed copy of the report on A4 size paper should be submitted in soft/**hard** binding.

**Reading List**

1. Government of India. (1997) *Vulnerability Atlas of India*. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) *Vulnerable India: A Geographical Study of Disasters*, Sage Publication, New Delhi.
3. Modh, S. (2010) *Managing Natural Disaster: Hydrological, Marine and Geological Disasters*, Macmillan, Delhi.
4. Singh, R.B. (2005) *Risk Assessment and Vulnerability Analysis*, IGNOU, New Delhi. Chapter 1, 2 and 3 Singh, R. B. (ed.), (2006) *Natural Hazards and Disaster Management: Vulnerability and Mitigation*, Rawat Publications, New Delhi.
5. Sinha, A. (2001). *Disaster Management: Lessons Drawn and Strategies for Future*, New United Press, New Delhi.
6. Stoltman, J.P. et al. (2004) *International Perspectives on Natural Disasters*, Kluwer Academic Publications.
7. Singh Jagbir (2007) —*Disaster Management Future Challenges and Opportunities*||, 2007.Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

## **SUSTAINABLE DEVELOPMENT**

**Credits: 04**

1. Sustainable Development: definition, components, limitations and historical background;
2. The Millennium Development Goals: national strategies and international experiences;
3. Inclusive Development: education, health; climate change: the role of higher education in sustainable development; poverty and disease; the challenges of universal health coverage; policies and global cooperation for climate change;
4. Sustainable Development policies and programmes: The proposal for SDGs at Rio+20; Illustrative SDGs; goal-based development; financing for sustainable development; principles of good governance; National Environmental Policy, CDM.

## **PRACTICAL**

**Credits: 02**

Project report based on any one field-based case study among the following:

- a) Health issues in any local village
- b) Education status in any local village

### **Practical Record**

1. *Students will prepare a report based on primary and secondary data collected during fieldwork.*
2. *The word count of the report should be about 5000 to 6000 words, excluding figures, tables, photographs, maps, references and appendices.*
3. *One typed copy of the report on A4 size paper should be submitted in soft binding*

### **Reading List**

1. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) Just Sustainability: Development in an Unequal World. London: Earth scan. (Introduction and conclusion.).
2. Ayers, Jessica and David Dodman (2010) —Climate change adaptation and development I: the state of the debate. Progress in Development Studies 10 (2):161-168.
3. Baker, Susan (2006) Sustainable Development. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, —The concept of sustainable development.))
4. Brosius, Peter (1997) —Endangered forest, endangered people: Environmentalist representations of indigenous knowledge. Human Ecology 25:47-69.
5. Lohman, Larry (2003) —Re-imagining the population debate. Corner House Briefing 28.
6. Martínez-Alier, Joan et al (2010) —Sustainable development: Mapping the context, criticisms and future prospects of an emergent paradigm. Ecological Economics 69:1741-1747.
7. Merchant, Carolyn (Ed.) (1994) Ecology. Atlantic Highlands, N.J: Humanities Press. (Introduction, pp125.)
8. Osorio, Leonardo et al (2005) —Debates on sustainable development: towards a holistic view of reality. Environment, Development and Sustainability 7:501-518.
9. Robbins, Paul (2004) Political Ecology: A Critical Introduction. Blackwell Publishing.
10. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.

**COURSE CODE: GEOP-DE1L-505: Class test**

**GEOGRAPHY PROGRAMME COURSE  
GENERIC ELECTIVE**

**COURSE CODE: GEOP-GE1L-506**

**Credit: 04**

**PHYSICAL GEOGRAPHY**

1. Geotectonic: Origin and evolution of the earth (Nebular Hypothesis and Big Bang Theory), Interior structure of the earth; Wegener's Continental Drift theory and Plate Tectonic theory;
2. Rocks: Major types of rocks and their characteristics;
3. Geomorphic processes: Weathering and mass wasting;
4. Geomorphology: Erosional and depositional features of river, glacier and wind.

**PRACTICAL**

**Credit: 02**

1. Scale: Definition, classification, merits and demerits; construction of simple linear and comparative scale;
2. Map Projection: Definition, classification and graphical construction of Zenithal Gnomonic Projection (Polar Case); Cylindrical Equal Area Projection; Simple Conical Projection with one Standard Parallel.

**Reading List**

1. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
2. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
3. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
4. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
5. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE GEOP-GE1L-506: Class Test**

**GEOGRAPHY PROGRAMME COURSE**  
**SKILL ENHANCEMENT COURSE**

*Students will have to choose any one from the given course*

**COURSE CODE: GEOP-SECL-507**

**Credit: 04**

**REMOTE SENSING**

1. Remote Sensing: Definition and development; platforms and types; photogrammetry;
2. Satellite Remote Sensing: Principles, EMR Interaction with atmosphere and earth surface; satellites (Landsat and IRS); sensors;
3. Visual Satellite Image Interpretation;
4. Application of Remote Sensing in Land use/Land cover mapping.

**Reading List**

1. Bhatta, B. (2008) Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press
3. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
4. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
5. Lillesand T. M., Kiefer R. W. and Chapman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
6. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
7. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
8. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
9. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.

**RURAL DEVELOPMENT**

**Credit: 02**

1. Rural Development: Concept, basic elements, measures of level of rural development;
2. Paradigms of rural development: Gandhian approach to rural development; Lewis model of economic development;
3. Major Rural Development Programmes in India: PMGSY, SGSY, MNREGA, Jan Dhan Yojana and NABARD;
4. Rural Governance: Panchayati Raj System and rural development policies.

**Reading list:**

1. Gilg, A.W. 1985. An Introduction to Rural Geography, Edwin Arnold.
2. Krishnamurthy, J. 2000. Rural Development: Problems and Prospects, Rawat Publications.
3. Lee, D.A., Chaudhuri, D.P. (eds) 1983. Rural Development and State, Methuen Publishing.
4. Misra, R.P., Sundaram, K.V. (eds) 1979. Rural Area Development: Perspectives and Approaches, Sterling Publishers.
5. Misra, R.P. (Ed.) 1985. Rural Development: Capitalist and Socialist Paths, Vol-1, Concept Publishing.

6. Ramachandran, H., Guimaraes, J.P.C. 1991. Integrated Rural Development in Asia: Learning from Recent Experience, Concept Publishing.
7. Robb, P. (Ed.) 1983. Rural South Asia: Linkages, Change and Development, Curzon Press.
8. Singh, K., Shishodia, A. 2016. Rural Development: Principles, Policies, and Management, 4th edition, Sage.
9. Wanmali, S. 1992. Rural Infrastructure, the Settlement System and Development of the Regional Economy in Southern India, International Food Policy Research Institute.
10. Yugandhar, B.N., Mukherjee, N.(eds) 1991. Studies in Village India: Issues in Rural
11. Development, Concept Publishing.

# **SIXTH SEMESTER**

**GEOGRAPHY HONOURS COURSE  
DISCIPLINE SPECIFIC CORE**

**COURSE CODE: GEOH-CCHL-601**

**Credit: 04**

**EVOLUTION OF GEOGRAPHICAL THOUGHTS**

1. Evolution of geographical ideas during the ancient period in Western world and India;
2. Evolution of geographical ideas during the medieval period in Western world and India;
3. Modern evolution of geographical thinking in Germany, Britain, United States of America;
4. Trends: Environmental Determinism and Possibilism, Systematic and Regional, Quantitative Revolution; Feminism. Post Modernism.

**PRACTICAL**

**Credit: 02**

1. Techniques in geography: Chi square, standard score; dominant and distinctive analysis
2. Changing perception of the maps of the world (Ptolemy, Ibn Batuta, Mercators)

*Practical Record: A project file covering assignment all practical topics  
must be prepared and submitted.*

**Reading List**

1. Arentsen M., Stam R. and Thuijjs R., 2000: Post-modern Approaches to Space, e-book.
2. Bhat, L.S. (2009) Geography in India (Selected Themes).Pearson
3. Bonnett A., 2008: What is Geography? Sage.
4. Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice– Hall India.
5. Hartshorne R., 1959: Perspectives of Nature of Geography, Rand MacNally and Co.
6. Holt-Jensen A., 2011: Geography: History and Its Concepts: A Students Guide, SAGE.
7. Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
8. Johnston R. J., 1997: Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London.
9. Kapur A., 2001: Indian Geography Voice of Concern, Concept Publications.
10. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford.
11. Soja, Edward 1989. Post-modern Geographies, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

**COURSECODE: GEOH-CCHL-602**  
**DISASTER MANAGEMENT**

**Credit: 04**

1. Definition, classification of hazards and disasters; Risk perception and vulnerability assessment;
2. Factors, consequences and management of earthquake, flood, cloud burst and landslide; pandemic as a biological hazard;
3. Response and Mitigation to disasters: Mitigation and Preparedness; indigenous knowledge and community based disaster management;
4. National Disaster Management Act, 2005; Role of National Institute of Disaster Management

**PRACTICAL**

**Credit: 02**

Project report on any one field-based case study from the following disaster will be prepared:

- a) Flood
- b) Landslide
- c) Cyclone

**Project Report**

1. *Student will prepare a project report based on primary and secondary data collected from local area.*
2. *The word count of the report should be about 5000 to 6000 words, excluding figures, tables, photographs, maps, references and appendices.*
3. *One typed copy of the report on A4 size paper should be submitted in hard/soft binding.*

**Reading List**

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications, Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India(www.ikbooks.com).

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOH-CCHL-601: Seminar**

**COURSE CODE: GEOH-CCHL-602: Class Test**

**GEOGRAPHY HONOURS**  
**DISCIPLINE SPECIFIC ELECTIVE**

*(Students will have to choose two courses: Advanced Cartography or Political Geography  
and*

*Hydrology & Oceanography or Social Geography)*

**COURSECODE: GEOH-DE3L-603**

**Credit: 04**

**ADVANCED CARTOGRAPHY**

1. Fundamentals of cartography: Nature, scope and history;
2. Levelling: Solution of computational problems in Dumpy Level and drawing of profiles, methods of contouring; Theodolite traversing: computation of latitude and departure; computation of area;
3. Map Projection: Properties, advantages, limitations and derivation of Polar Zenithal Equal Area, Polar Zenithal Equidistant, Cubic Development of Gnomonic Projection; Simple Conical Projection with two standard parallels; International Projection, Universal Transverse Mercator's Projection;
4. Remote Sensing and GIS: Concept, principles and components of Remote sensing, Techniques of digital image processing, Application of GIS.

**PRACTICAL**

**Credit: 02**

1. Drawing of profiles and contouring by Dumpy Level; Theodolite traversing: computation of latitude and departure; computation of area;
2. Construction of Polar Zenithal Equal Area, Polar Zenithal Equidistant, Simple Conical Projection with two standard parallels; International Projection

**Reading List**

1. Hinks, A. R.: Map Projections, Cambridge University Press, Cambridge, UK, 1<sup>st</sup> Edition, 1921.
2. Kellaway, George P.: Map Projections, Methuen & Co. Ltd., London, 2<sup>nd</sup> Edition, 1949.
3. Krack Menno-Jan and Brown Allan: Web Cartography: developments and prospects, Taylor & Francis, London, 1<sup>st</sup> Edition, 2001.
4. Mailing, D.H.: The Terminology of Map Projections, International year Book of Cartography VIII, George Philip & Sons Ltd., London, 1<sup>st</sup> Edition, 1968.
5. Mainwaring, James: An Introduction to the study of Map Projection, McMillan & Co., NY 1960
6. Robinson, Arthur H., Morison, Joel L., Muehrcke, Philip C., Kimerling, A. Jon & Guptill, Stephen C.: Elements of Cartography, John Wiley & Sons, Inc., N.Y., 6<sup>th</sup> Edition, 1995.
7. Raisz Erwin.: Principles of Cartography, International Student Edition, McGraw-Hill Book Co. Inc., Tokyo, Japan, 1<sup>st</sup> Edition, 1962.
8. Rais, Erwin.: General Cartography, McGraw Hill Book Co., New York, 1938.
9. Richardus, Peter and Adler, Ron K.: Map Projections, North-Holland Publishing Company, Amsterdam, 1<sup>st</sup> Edition, 1972.
10. Roy, P.: An Analytical Study of Map Projections, Applied and Mathematical Geographic Studies, Calcutta, 1<sup>st</sup> Edition, 1988.
11. Sarkar, Ashis: Practical Geography – A Systematic Approach, Orient Longman, Calcutta,

- 1<sup>st</sup> Edition, 1991.
12. Sarkar, Ashis and Roy, P., 1983: Some selected Map Projection for India – their relative efficiencies, *Geographical Review of India*, Kolkata, Vol. 43, No.2.
  13. Singh, R. L.: *Elements of Practical Geography*, Kalyani Publishers, New Delhi, 1<sup>st</sup> Edition, 1979.
  14. Snyder, John P.: *Flattening the Earth-Two thousand years of Map Projections*, The University of Chicago Press, Chicago, 1<sup>st</sup> Edition, 1997.
  15. Steers, J.A.: *An introduction to the Study of Map Projections*, University of London Press Ltd., London, Thirteenth Edi., 1962.

### **POLITICAL GEOGRAPHY Credit: 04**

1. Concepts, nature and scope of Political Geography;
2. Concept of nation, state and nation state, Attributes of states: frontiers and boundaries; Geopolitics of South East Asia; theories (Heartland and Rimland);
3. Emerging geo-political issues in India: reorganization of states in India; water sharing disputes;
4. Politics of displacement: Issues of relief, compensation and rehabilitation: with reference to dams in India.

### **PRACTICAL**

**Credit: 02**

1. Preparation of spatial distribution maps of India: gender, caste and religion;
2. Voting behaviour in India using line graphs, bar graphs and pie graphs.

### **Reading List**

1. Agnew J., 2002: *Making Political Geography*, Arnold.
2. Agnew J., Mitchell K. and Toal G., 2003: *A Companion to Political Geography*, Blackwell.
3. Cox K. R., Low M. and Robinson J., 2008: *The Sage Handbook of Political Geography*, Sage Publications.
4. Cox K., 2002: *Political Geography: Territory, State and Society*, Wiley-Blackwell
5. Gallaher C., et al, 2009: *Key Concepts in Political Geography*, Sage Publications.
6. Glassner M., 1993: *Political Geography*, Wiley.
7. Jones M., 2004: *An Introduction to Political Geography: Space, Place and Politics*, Routledge Mathur H.M. & M. M. Cernea (eds.) *Development, Displacement and Resettlement – Focus on Asian Experience*, Vikas, Delhi
8. Painter J. and Jeffrey A., 2009: *Political Geography*, Sage Publications.
9. Taylor P. and Flint C., 2000: *Political Geography*, Pearson Education.
10. Verma M K (2004): *Development, Displacement and Resettlement*, Rawat Publications, Delhi
11. Hodder Dick, Sarah J Llyod and Keith S McLachlan (1998), *Land Locked States of Africa and Asia* (vo.2), Frank Cass

**COURSE CODE: GEOH-DE4L-604****HYDROLOGY AND OCEANOGRAPHY****Credit: 04**

1. Hydrological Cycle: Systems approach in hydrology, precipitation, interception, evaporation, evapo-transpiration, infiltration, ground-water, run off and over land flow;
2. Characteristics of river basins, basin surface run-off, measurement of river discharge; floods and droughts;
3. Ocean salinity, temperature and density (determinants and distribution);
4. Coral Reefs: types and theories of origin; marine deposits.

**PRACTICAL****Credit: 02**

1. Morphometric analysis of any river basin from topographical map (stream frequency, drainage texture, circulatory ratio, elongation ratio);
2. Plotting of Hydrographs for five stations.

**Reading List**

1. Andrew. D. ward and Stanley, Trimble (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Karanth, K.R., 1988 : Ground Water: Exploration, Assessment and Development, Tata-McGraw Hill, New Delhi.
3. Ramaswamy, C. (1985): Review of floods in India during the past 75 years: A Perspective. Indian National Science Academy, New Delhi.
4. Rao, K.L., 1982 : India's Water Wealth 2nd edition, Orient Longman, Delhi,.
5. Singh, Vijay P. (1995): Environmental Hydrology. Kluwar Academic Publications, The Netherlands.
6. Garrison T., 1998: Oceanography, Wordsworth Company, Belmont.
7. Kershaw S., 2000: Oceanography: An Earth Science Perspective, Stanley Thornes, UK.
8. Pinet P. R., 2008: Invitation to Oceanography (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
9. Sharma R. C. and Vatal M., 1980: Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
10. Sverdrup K. A. and Armbrust, E. V., 2008: An Introduction to the World Ocean, McGraw Hill, Boston.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Landscape ecology and water management. Proceedings of IGU Rohtak Conference, Volume 2. Advances in Geographical and Environmental Studies, Springer

**SOCIAL AND CULTURAL GEOGRAPHY****Credit: 04**

1. Social Geography: concept, nature and scope;
2. Social process; social groups; social space and social conflicts;
3. Cultural diffusion and convergence; cultural regions; cultural landscape;
4. Social wellbeing; concept and indicators; health care; health and disease pattern (communicable and lifestyle disease) with special reference to India.

## **PRACTICAL**

**Credit: 02**

1. Flow chart to show migration trends in India;
2. Decadal variation of population components in India (population density; age sex ratio and Infant Mortality Rate).

### **Reading List**

1. Ahmed A., 1999: Social Geography, Rawat Publications.
2. Casino V. J. D., Jr., 2009) Social Geography: A Critical Introduction, Wiley Blackwell.
3. Cater J. and Jones T., 2000: Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
4. Holt L., 2011: Geographies of Children, Youth and Families: An International Perspective, Taylor & Francis.
5. Panelli R., 2004: Social Geographies: From Difference to Action, Sage.
6. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: Introducing Social Geographies, Oxford University Press.
7. Smith D. M., 1977: Human geography: A Welfare Approach, Edward Arnold, London.
8. Smith D. M., 1994: Geography and Social Justice, Blackwell, Oxford.
9. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: The SAGE Handbook of Social Geographies, Sage Publications.
10. Sopher, David (1980): An Exploration of India, Cornell University Press, Ithaca
11. Valentine G., 2001: Social Geographies: Space and Society, Prentice Hall.

***Important Note: Continuing evaluation for all Discipline Specific Elective will be Class Test***

## **GEOGRAPHY PROGRAMME COURSE DISCIPLINE SPECIFIC ELECTIVE -**

*(Students will choose either Climate Change: Vulnerability and Adaptation or Rural Development)*

**COURSE CODE: GEOP-DE2L-605**

**Credits: 04**

### **CLIMATE CHANGE: VULNERABILITY AND ADAPTATION**

1. Climate change: concepts and implications; greenhouse effect and global warming; IPCC;
2. Climate change and vulnerability: physical, social and economic vulnerability;
3. Impact of Climate Change: Agriculture and water; flora and fauna; human health;
4. Adaptation and mitigation to climate change with particular reference to India.

### **PRACTICAL**

**Credits: 02**

Project report based on impact and adaptation to climate change at the local level.

#### **Practical Record**

1. *Student will prepare a report based on primary and secondary data collected during fieldwork.*
2. *The word count of the report should be 5000 to 6000 words, excluding figures, tables, photographs, maps, references and appendices.*
3. *One typed copy of the report on A4 size paper should be submitted in soft/hard binding.*

#### **Further Readings**

1. IPCC. (2007) Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
2. IPCC (2014) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
3. IPCC (2014) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
4. Palutikof, J. P., van der Linden, P. J. and Hanson, C. E. (eds.), Cambridge University Press, Cambridge, UK.
5. OECD. (2008) Climate Change Mitigation: What Do We Do? Organization and Economic Cooperation and Development.
6. UNEP. (2007) Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.
7. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
8. Sen Roy, S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH Pub., New Delhi.

## **RURAL DEVELOPMENT**

**Credits: 04**

1. Need for Rural Development, Gandhian Approach of Rural Development;
2. Rural Economic Base: Panchayat Raj System, Agriculture and Allied Sectors, Co-operatives, PURA;
3. Area Based Approach to Rural Development: Flood Prone Area Programmes, PMGSY;
4. Target Group Approach to Rural Development: SGSY, MNREGA, Jan Dhan Yojana and Rural Connectivity; Role of Self Help Groups.

## **PRACTICAL Credits: 02**

A case study on socio economic status of the people at any one of the following level:

- a. Village Level
- b. Mouza Level

### **Practical Record**

1. *Each student will prepare a report based on primary and secondary data collected during fieldwork.*
2. *The word count of the report should be 5000 to 6000 words excluding figures, tables, photographs, maps, references and appendices.*
3. *One typed copy of the report on A4 size paper should be submitted in soft/**hard** binding*

### **Reading List**

1. Gilg A. W., 1985: An Introduction to Rural Geography, Edwin Arnold, London.
2. Krishnamurthy, J. 2000: Rural Development - Problems and Prospects, Rawat Publs., Jaipur
3. Lee D. A. and Chaudhri D. P. (eds.), 1983: Rural Development and State, Methuen, London.
4. Misra R. P. and Sundaram, K. V. (eds.), 1979: Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
5. Misra, R. P. (ed.), 1985: Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi.
6. Palione M., 1984: Rural Geography, Harper and Row, London.
7. Ramachandran H. and Guimaraes J.P.C., 1991: Integrated Rural Development in Asia – Learning from Recent Experience, Concept Publishing, New Delhi.
8. Robb P. (ed.), 1983: Rural South Asia: Linkages, Change and Development, Curzon Press.
8. UNAPDI 1986: Local Level Planning and Rural Development: Alternative Strategies. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publs. Co., New Delhi.
9. Wanmali S., 1992: Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
10. Yugandhar, B. N. and Mukherjee, Neela (eds.) 1991: Studies in Village India: Issues in Rural Development, Concept Publs. Co., New Delhi.

**COURSE CODE: GEOP-DE2L-605: Seminar**

**GEOGRAPHY PROGRAMME COURSE  
GENERIC ELECTIVE**

**COURSE CODE: GEOP-GE2L-606**

**GEOGRAPHY OF INDIA**

1. Physiography, climate, natural vegetation and soil;
2. Intensive farming (rice), plantation farming (tea and rubber);
3. Factors of industrial location, classification of industries, distribution of Iron and Steel industry, Cotton Textile industry;
4. Growth and spatial distribution of population; characteristics of the population (race, language, religion and caste).

**PRACTICAL**

1. Geological map: Uniclinal and folded structure with given dips;
2. Topographical maps: Interpretation of topographical map of India; relief, drainage, natural vegetation, settlement and transport & communication (plateau region); Transect Chart.

**Reading List**

1. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.
2. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
3. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
4. Singh, Jagdish 2003: India; A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
5. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
6. Tirtha, Ranjit 2002: Geography of India, Rawat Publishers, Jaipur & New Delhi.
7. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan, Allahabad
8. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

***Important Note: Continuing evaluation will be as follows:***

**COURSE CODE: GEOP-GE2L-606: Class Test**

**GEOGRAPHY PROGRAMME COURSE**  
**SKILL ENHANCEMENT COURSE**

*Students will have to choose any one from the given courses*

**COURSE CODE: GEOP-SECL-607**

**Credit: 02**

**GEOGRAPHICAL INFORMATION SYSTEM**

1. Geographical Information System (GIS): Definition and Components;
2. Global Positioning System (GPS): Principles and uses;
3. GIS Data Structures: Types (spatial and non-spatial), raster and vector data structure; GIS Data Analysis: Input; geo-referencing; editing and output;
4. Application of GIS: Land use mapping; urban sprawl analysis; forests monitoring.

**Reading List**

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg. 41
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
3. Heywood, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
4. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
5. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
6. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
7. Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

**TOURISM MANAGEMENT**

**Credit: 02**

1. Tourism: Concepts; geographical elements of tourism by Robinson; Peter's Inventory;
2. Types of tourism: Heritage tourism, Cultural tourism, Medical tourism; Home stay tourism and Ecotourism;
3. Recent Trends of Tourism: International and domestic; Case studies of Himalayas with special reference to North Bengal and coastal areas with special reference to South Bengal;
4. National Tourism Policy of India, 2007.

**Reading List:**

1. Boniface, B., Cooper, R., Cooper, C. 2016. Worldwide Destinations: The Geography of Travel and Tourism, vol. 1, 7th ed, Routledge.
2. Edgell, D.L., Swanson, J. 2013. Tourism Policy and Planning: Yesterday, Today, and Tomorrow, Routledge.
3. Fennell, D.A. 2014. Ecotourism, 4th ed, Routledge.
4. Hall, C.M., Lew, A.A. 2009. Understanding and Managing Tourism Impacts: An Integrated Approach, Routledge.

5. Hall, C.M., Page, S.J. 2014. *The Geography of Tourism and Recreation: Environment, Place and Space* 4th ed, Routledge.
6. Honey, M. 2008. *Ecotourism and Sustainable Development, Second Edition: Who Owns Paradise?* 2nd ed, Island Press.
9. Kale, V.S. (Ed) 2017. *Geomorphology of India*, Indian Institute of Geomorphologists.
10. Lew, A., Hall, C.M., Timothy, D.J. 2008. *World Geography of Travel and Tourism: A Regional Approach*, Butterworth-Heinemann.
11. Mason, P. 2017. *Geography of Tourism: Image, Impacts and Issues*, Good fellow Publishers.
12. Mowforth, M., Munt, I. 2015. *Tourism and Sustainability: Development, globalization and new tourism in the Third World*, 4th ed, Routledge.
13. Var, T., Gunn, C. *Tourism Planning: Basics, Concepts, Cases*, 4th ed, Routledge.
14. Velvet, N. 2017. *An Introduction to the Geography of Tourism*, 2nd ed, Rowman & Littlefield Publishers.
15. Williams, S., Lew, A.A. 2014. *Tourism Geography: Critical Understandings of Place, Space and Experience*, 3rd ed, Routledge.
16. Wilson, J. 2017. *The Routledge Handbook of Tourism Geographies*, Routledge.