

**CBCS SYLLABUS
FOR
UNDERGRADUATE HONOURS
COURSE IN GEOGRAPHY**

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

**B.A/B.Sc. (HONOURS COURSE)
GEOGRAPHY
DISCIPLINE CORE SPECIFIC – CC**

FIRST SEMESTER

1. Course Code: GEO-H-CC-1-01-TH - Geotectonic
Course Code: GEO-H-CC-1-01- PR - Practical

2. Course Code: GEO-H-CC-1-02-TH - Geomorphology
Course Code: GEO-H-CC-1-02- PR - Practical

SECOND SEMESTER

1. Course Code: GEO-H-CC-2-03- H - Human Geography
Course Code: GEO-H-CC-2-03-PR–Practical

2. Course Code: GEO-H-CC-2-04-TH - Settlement Geography
Course Code: GEO-H-CC-2-04-PR - Practical

THIRD SEMESTER

1. COURSE CODE: GEO-H-CC-3-05-TH - Climatology
COURSE CODE: GEO-H-CC-3-05-PR –Practical

2. COURSE CODE: GEO-H-CC-3-06-TH - Statistical Methods in Geography
COURSE CODE: GEO-H-CC-3-06-PR –Practical

3. COURSE CODE: GEO-H-CC-3-07-TH - Geography of India
COURSE CODE: GEO- H-CC-3-07-PR - Practical

FOURTH SEMESTER

1. Course Code: GEO-H-CC-4-08-TH - Economic Geography
Course Code: GEO-H-CC4-08-PR –Practical

2. Course Code: GEO-H-CC-4-09-TH - Regional Planning and Development
Course Code: GEO-H-CC4-09-PR - Practical

3. Course Code: GEO-H-DSC-4-10-TH - Field Work and Research Methodology
Course Code: GEO-H-DSC-4-10-PR - Practical (Field Survey)

FIFTH SEMESTER

1. Course Code: GEO-H-CC-5-11-TH - Environmental Geography
Course Code: GEO-H-CC-5-11-PR - Practical

2. Course Code: GEO-H-CC-5-12-TH - Remote Sensing and GIS
Course Code: GEO-H-CC-5-12-PR -Practical

SIXTH SEMESTER

1. Course Code: GEO-H-CC-6-13-TH - Evolution of Geographical Thoughts
Course Code: GEO-H-CC-6-13-PR –Practical

2. Course Code: GEO-H-CC-6-14-TH - Disaster Management
Course Code: GEO-H-CC-6-14-PR -Practical

SKILL ENHANCEMENT COURSE – SEC (ANY ONE)

Students will have to choose any one from the given course

THIRD SEMESTER

1. **Course Code: GEO-SEC-A-3-01-TH: Remote Sensing**
2. **Course Code: GEO-SEC-A-3-01-TH: Rural Development**

FOURTH SEMESTER

Students will have to choose any one from the given course

1. **Course Code: GEO-SEC-A-4-02-TH: Geographical Information System**
2. **Course Code: GEO-SEC-A-4-02-TH: Tourism Management**

DISCIPLINE SPECIFIC CORE COURSE - DSC

FIFTH SEMESTER

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

1. **Course Code: GEO-H-DSE-5-01-TH: Population Geography**
Course Code: GEO-H-DSE-5-01-PR: Population Geography

Course Code: GEO-H-DSE-5-01-TH: Resource Geography
Course Code: GEO-H-DSE-5-01-PR: Resource Geography

2. **Course Code: GEO-H-DSE-5-02-TH: Urban Geography**
Course Code: GEO-H-DSE-5-02-PR: Urban Geography

Course Code: GEO-H-DSE-5-02-TH: Agricultural Geography
Course Code: GEO-H-DSE-5-02-PR: Agricultural Geography

SIXTH SEMESTER

(Students will have to choose any two courses: Advanced Cartography or Political Geography and Hydrology & Oceanography or Social Geography)

3. **Course Code: GEO-H-DSE-6-03-TH: Advanced Cartography**
Course Code: GEO-H-DSE-6-03-PR: Advanced Cartography

Course Code: GEO-H-DSE-6-03-TH: Political Geography
Course Code: GEO-H-DSE-6-03-PR: Political Geography

4. **Course Code: GEO-H-DSE-6-04-TH: Hydrology and Oceanography**
Course Code: GEO-H-DSE-6-04-PR: Hydrology and Oceanography

Course Code: GEO-H-DSE-6-04-TH: Social Geography
Course Code: GEO-H-DSE-6-04-PR: Social Geography

FIRST SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE-CC

COURSE CODE: GEO-H-CC-1-01-TH

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; Plate Tectonics: concept and theory;
4. Development of drainage on uniclinal and folded structure; Mountain Building theories (Kober and Holmes).

COURSE CODE: GEO-H-CC-1-01-PR

Credit: 02

PRACTICAL

1. Scales: Concept and application; graphical construction of plain, comparative, diagonal and vernier scales;
2. Map Projections: Classification, properties and uses; 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: GEO-H-CC-1-02-TH

Credit: 04

GEOMORPHOLOGY

1. Geomorphology: Nature and scope; Fundamental concepts;
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).

COURSE CODE: GEO-H-CC-1-02-PR

Credit: 02

PRACTICAL

1. Topographical Map: Interpretation of plateau/mountain area with the help of cross and longitudinal profiles; interpretation of relief profile: superimposed, projected and composite; Slope Analysis (Wentworth's method); Relative relief (Smith's method); Drainage density and drainage frequency; Transect chart.
2. Megascopic identification of rocks and minerals: granite, basalt, 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 Cartographic Vol. Pregmen Press.*
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

Important Note: Continuing evaluation will be as follows:

COURSE CODE: GEO-H-CC-1-01: Class Test

COURSE CODE: GEO-H-CC-1-02: Class Test

SECOND SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE-CC

COURSE CODE: GEO-H-CC-2-03-H

Credit: 04

HUMAN GEOGRAPHY

1. Defining Human Geography; Scope and content of Human Geography; contemporary relevance;
2. Space and society: cultural regions; race; religion and language;
3. Population growth and distribution with special reference to India; population composition; Demographic Transition Theory; Population Policy of India;
4. Concept of population-resource relationship; Population resource regions of the world (Ackerman)

COURSECODE: GEO-H-CC-2-03-PR

Credit: 02

PRACTICAL

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

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

COURSECODE: GEO-H-CC-2-04-TH

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

COURSECODE: GEO-H-CC-2-04-PR

Credit: 02

PRACTICAL

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 (6th 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. and 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

Important Note: Continuing evaluation will be as follows:

COURSE CODE: GEO-H-CC-2-03: Term Paper

COURSE CODE: GEO-H-CC-2-04: Seminar

THIRD SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -CC

COURSECODE: GEO-H-CC-3-05-TH

Credit: 04

CLIMATOLOGY

1. Atmospheric composition and structure; insolation and temperature: factors and distribution, heat budget, temperature inversion;
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 and Thornthwaite)
4. Cyclones: Tropical cyclones, extra tropical cyclones.

COURSECODE: GEO-H-CC-3-05-PR

Credit: 02

PRACTICAL

1. Meteorological instruments: Recording of Maximum and Minimum thermometer, Hygrometer, Fortin's barometer;
2. Interpretation of Indian daily weather report; Representation of climatic data by climographs and hythergraphs.

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

COURSECODE: GEO-H-CC-3-06-TH

Credit: 04

STATISTICAL METHODS IN GEOGRAPHY

1. Significance of statistics in Geography;
2. Use of data in Geography: sources of data, scales of measurement (nominal, ordinal, interval, ratio);
3. Sampling: purposive, random, systematic and stratified;
4. Theoretical concept: probability and normal distribution.

COURSECODE: GEO-H-CC-3-06-PR

Credit: 02

PRACTICAL

1. Tabulation of data; frequency distribution table, class group and class interval; Descriptive statistics: Deciles, Quartiles, Percentiles; 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: Rank Correlation, Product Moment 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 McCullagh 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., NewDelhi
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: GEO-H-CC-3-07-TH Credit: 04 GEOGRAPHY OF INDIA

1. Physical: Physiographic divisions, soil, vegetation, climate (characteristics and classification);
2. Economic: Mineral and power resources distribution and utilization of iron ore, coal, petroleum, gas; agricultural production and distribution of rice and wheat; industrial development: Automobile and 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).

COURSE CODE: GEO-H-CC-3-07-PR

Credit: 02

PRACTICAL

1. Monthly temperature and rainfall graphs of five selected stations from different climatic regions of India;
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: GEO-H-CC-3-05: Report writing

COURSE CODE: GEO-H-CC-3-06: Report writing

COURSE CODE: GEO-H-CC-3-07: Report writing

(Report will be an overview of syllabus topic given by the guide teacher. Word limit will be 1000 words. It must be hand-written)

SKILL ENHANCEMENT COURSE - SEC (ANY ONE)

Students will have to choose any one from the given course

COURSE CODE: GEO-SEC-A-3-01-TH

Credit: 02

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.

COURSECODE: GEO-SEC-A-3-01-TH

Credit: 02

RURAL DEVELOPMENT

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, SJSY, 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 Development*, Concept Publishing.

FOURTH SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -CC

COURSE CODE: GEO-H-CC-4-08-TH

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, forestry, fishing and mining;
3. Secondary activities: Manufacturing (Cotton Textile, Iron and Steel), Special Economic Zones and Technology Parks;
4. Tertiary activities: transport, trade and services.

COURSECODE: GEO-H-CC4-08-PR

Credit: 02

PRACTICAL

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 (comparison of developed and developing countries).

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: GEO-H-CC-4-09-TH

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; types of regional planning;
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; Growth Centre Model in Indian Context; Myrdal and Rostow;
4. Measuring development: Indicators (economic, social and environmental); Human development.

COURSE CODE:GEO-H-CC4-09-PR

Credit: 02

PRACTICAL

1. Delineation of formal regions by weighted index method; Delineation of functional regions by breaking point analysis;
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: GEO-H-CC-4-10-TH

Credit: 04

FIELD WORK AND RESEARCH METHODOLOGY

1. Field work in geographical studies: Role, value, data and ethics of field-work;

2. Defining the field and identifying the case study: Rural; urban; physical; human and environmental;
3. Field techniques: Merits, demerits and selection of the appropriate technique; observation (participant and non-participant), questionnaires (open, closed, structured and non-structured); interview with special focus on focused group discussions;
4. Defining research problems; objectives and hypothesis.

COURSE CODE: GEO-H-CC-4-10-PR

Credit: 02

PRACTICAL (FIELD SURVEY)

1. Use of field tools: Collection of material for physical and socio-economic surveys;
2. Designing the field report: Aims and objectives, methodology, analysis, interpretation and writing the report.

Project Report

1. Each student will prepare an individual 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 A 4 size paper should be submitted in soft 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 Publs. Co., New Delhi.
5. Mukherjee, Neela 2002. *Participatory Learning and Action: with 100 Field Methods*. Concept Publs. 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: GEO-H-CC-4-08: Class Test

COURSE CODE: GEO-H-CC-4-09: Class Test

COURSE CODE: GEO-H-CC-4-10: Class Test

SKILL ENHANCEMENT COURSE – SEC (ANY ONE)

Students will have to choose any one from the given course

COURSECODE: GEO-SEC-A-4-02-TH

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, BerlinHeidelberg.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.*

COURSECODE: GEO-SEC-A-4-02-TH

Credit: 02

TOURISM MANAGEMENT

1. Tourism: Concepts, nature and scope, inter-relationships of tourism, recreation and leisure; geographical parameters of tourism by Robinson;
2. Type of tourism: Nature tourism, Cultural tourism, Medical tourism, Pilgrimage tourism and Ecotourism;
3. Recent Trends of Tourism: International and regional; domestic (India); Meetings, Incentives, Conventions and Exhibitions (MICE); Case studies of Himalaya, desert, coastal areas and heritage tourism in India;
4. National Tourism Policy of India.

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.*

FIFTH SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -CC

COURSE CODE: GEO-H-CC-5-11-TH

Credit: 04

ENVIRONMENTAL GEOGRAPHY

1. Environmental Geography: Concept and scope; components of environment (physical and socio-cultural);
2. Human-environment relationships: Historical progression, adaptation in different biomes (tundra, savanna and equatorial);
3. Ecosystem: Concept, structure and functions and problems in tropical and temperate ecosystems;
4. Environmental programmes and policies: global, national and regional.

COURSE CODE: GEO-H-CC-5-11-PR Credit: 02 PRACTICALS

1. Preparation of questionnaire for perception survey on environmental problems;
2. Project on environmental problems of North Bengal relating to solid waste/water pollution/air pollution.

Project Report:

1. Each student will prepare an individual report based on primary and secondary data on any one topic mentioned above;
2. The word count of the report should be about 3000 to 4000 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. 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 Macgraw 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: GEO-H-CC-5-12-TH

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.

COURSE CODE: GEO-H-CC-5-12-PR

Credit: 02

PRACTICAL

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

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*, McGrawHill.
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: GEO-H-CC-5-11: Seminar

COURSE CODE: GEO-H-CC-5-12: Class Test

ELECTIVE DISCIPLINE SPECIFIC-DSE (ANY TWO)

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

COURSE CODE: GEO-H-DSE-5-01-TH

Credit: 04

POPULATION GEOGRAPHY (THEORY)

1. Defining the field: 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; (Malthusian Theory and Optimum Population Theory);
3. Population dynamics: Fertility, mortality and migration; measures, determinants and implications;
4. Population composition and characteristics: age-sex composition; rural and urban composition; literacy; contemporary issues: ageing of population; declining sex ratio, HIV/AIDS

COURSE CODE: GEO-H-DSE-5-01-PR

Credit: 02

POPULATION GEOGRAPHY (PRACTICAL)

1. Population projection by arithmetic method; Population density mapping for India;
2. Analysis of work participation rate: Total and gender-wise for India; Analysis of occupation structure by dominant and distinctive functions for West Bengal.

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. and Sidhu M. S., 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.

COURSE CODE: GEO-H-DSE-5-01-TH

Credit: 04

RESOURCE GEOGRAPHY (THEORY)

1. Natural Resource: Concept, classification and techniques;
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.

COURSECODE: GEO-H-DSE-5-01-PR**Credit: 02****RESOURCE GEOGRAPHY (PRACTICAL)**

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

Reading List

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

COURSECODE: GEO-H-DSE-5-02-TH**Credit: 04****URBAN GEOGRAPHY(THEORY)**

1. Urban geography: Introduction, nature and scope;
2. Patterns of urbanisation in developed and developing countries;
3. Functional classification of cities: quantitative and qualitative methods (F.S, Hudson, C.D. Harris and R. Ramachandran);
4. Urban Issues: problems of housing, slums, civic amenities (water and transport), Case studies of urban centres in North Bengal (*Siliguri Municipal Corporation and Headquarters of North Bengal districts*):

COURSECODE: GEO-H-DSE-5-02-PR**Credit: 02****URBAN GEOGRAPHY (PRACTICAL)**

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

COURSE CODE: GEO-H-DSE-5-02-TH

Credit: 04

AGRICULTURAL GEOGRAPHY (THEORY)

1. Agricultural Geography: Defining the field; Introduction, nature and scope; Land use/land cover definition and classification;
2. Determinants of Agriculture: Physical, technological and institutional;
3. Agricultural Regions of India: Agro-climatic, 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.

COURSECODE: GEO-H-DSE-5-02-PR

Credit: 02

AGRICULTURAL GEOGRAPHY (PRACTICAL)

1. Measurement of agricultural efficiency (Bhatia, Martin-Gibbs methods);
2. Measurement of crop concentration index by 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 Seminar

SIXTH SEMESTER
GEOGRAPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -CC

COURSE CODE: GEO-H-CC-6-13-TH

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, France, Britain, United States of America;
4. Debates: Environmental Determinism and Possibilism, Systematic and Regional.

COURSE CODE: GEO-H-CC-6-13-PR

Credit: 02

PRACTICAL

1. Quantitative techniques in geography: Chi square, standard score;
2. Crop combination by Weaver, Rafiulla and Doi.

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

Reading List

1. Arentsen M., Stam R. and Thuijjs R., 2000: *Post-modern Approaches to Space*, ebook.
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. Hartshone 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: GEO-H-CC-6-14-TH
DISASTERMANAGEMENT

Credit: 04

1. Definition, classification of hazards and disasters;
2. Approaches to hazard study: Risk perception and vulnerability assessment;
3. Factors, consequences and management of earthquake, flood, riverbank erosion, landslide;
4. Human induced disaster: Fire hazard, industrial accidents.

COURSECODE:GEO-H-CC-6-14-PR
PRACTICAL

Credit: 02

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

- a) Flood
- b) Landslide
- c) Earthquake

Project Report

1. Each student will prepare an individual project report based on primary and secondary data collected from local area.
2. The word count of the report should be about 4000 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 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: GEO-H-CC-6-13: Seminar
COURSE CODE: GEO-H-CC-6-14: Class Test

DISCIPLINE SPECIFIC ELECTIVE - DSE

(Students will have to choose two courses: Advanced Cartography or Political Geography and Hydrology & Oceanography or Social Geography)

COURSECODE: GEO-H-DSE-6-03-TH

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; Determination of height and distance by transit Theodolite (accessible and inaccessible base);
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.

COURSE CODE: GEO-H-DSE-6-03-PR

Credit: 02

ADVANCED CARTOGRAPHY (PRACTICAL)

1. Drawing of profiles and contouring by Dumpy Level; determination of height and distance by transit Theodolite (accessible and inaccessible base);
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, 1st Edition, 1921.
2. Kellaway, George P.: *Map Projections*, Methuen & Co. Ltd., London, 2nd Edition, 1949.
3. Krakk Menno-Jan and Brown Allan: *Web Cartography: developments and prospects*, Taylor & Francis, London, 1st Edition, 2001.
4. Mailing, D.H.: *The Terminology of Map Projections*, International year Book of Cartography VIII, George Philip & Sons Ltd., London, 1st Edition, 1968.
5. Mainwaring, James: *An Introduction to the study of Map Projection*, McMillan & Co., NY 1960
6. Rabinson, Arthur H., Morison, Joel L., Muehrcke, Philip C., Kimerling, A. Jon and Guptill, Stephen C.: *Elements of Cartography*, John Wiley & Sons, Inc., N.Y., 6th Edition, 1995.
7. Raisz Erwin.: *Principles of Cartography*, International Student Edition, McGraw-Hill Book Co. Inc., Tokyo, Japan, 1st Edition, 1962.
8. Raisz, Erwin.: *General Cartography*, McGraw Hill Book Co., New York, 1938.
9. Richardus, Peter and Adler, Ron K.: *Map Projections*, North-Holland Publishing Company, Amstardam, 1st Edition, 1972.
10. Roy, P.: *An Analytical Study of Map Projections*, Applied and Mathematical Geographic Studies, Calcutta, 1st Edition, 1988.
11. Sarkar, Ashis: *Practical Geography – A Systematic Approach*, Orient Longman, Calcutta, 1st 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, 1st Edition, 1979.

14. Snyder, John P.: *Flattening the Earth-Two thousand years of Map Projections*, The University of Chicago Press, Chicago, 1st Edition, 1997.
15. Steers, J.A.: *An introduction to the Study of Map Projections*, University of London Press Ltd., London, Thirteenth Edi.,1962.

COURSECODE: GEO-H-DSE-6-03-TH

Credit: 04

POLITICAL GEOGRAPHY (THEORY)

1. Introduction: Concepts, nature and scope of Political Geography;
2. Concept of nation, state and nation state, Attributes of states: frontiers and boundaries; geopolitics; theories (Heartland and Rimland);
3. Political Geography of resource conflicts: water sharing disputes, conflicts related to forest rights in India;
4. Politics of displacement: Issues of relief, compensation and rehabilitation: with reference to dams in India.

COURSECODE: GEO-H-DSE-6-03-PR

Credit: 02

POLITICAL GEOGRAPHY (PRACTICAL)

1. Preparation of spatial distribution maps of India: gender, caste, religion;
2. Preparation of questionnaire on socio-economic status of rural and urban centres of India

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*, RoutledgeMathur H.M. and 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: GEO-H-DSE-6-04-TH

Credit: 04

HYDROLOGY AND OCEANOGRAPHY (THEORY)

1. Hydrological Cycle: Systems approach in hydrology, human impact on the hydrological cycle; precipitation, interception, evaporation, evapo-transpiration, infiltration, ground-water, run off and over land flow; hydrological input and output;
2. Characteristics of river basins, basin surface run-off, measurement of river discharge; floods and droughts;

3. Bottom floor topography; ocean salinity and temperature; distribution and determinants;
4. Coral Reefs: types and theories of origin; marine deposits and ocean resources

COURSECODE: GEO-H-DSE-6-04-PR

Credit: 02

HYDROLOGY AND OCEANOGRAPHY (PRACTICAL)

1. Morphometric analysis of any river basin from topographical map (stream frequency, drainage texture, circulatory ratio, elongation ratio);
2. Calculation of discharge by area velocity methods.

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*

COURSE CODE: GEO-H-DSE-6-04-TH

Credit: 04

SOCIAL GEOGRAPHY (THEORY)

1. Social Geography: concept, origin, nature and scope;
2. People as a workforce: Technological and occupational change of the people of India; migration; types, causes and consequences;
3. Social categories: caste, class, religion, race and gender and their spatial distribution;
4. Geographies of welfare and wellbeing: concept and components: healthcare, housing and education; slums.

COURSE CODE: GEO-H-DSE-6-04-PR

Credit: 02

SOCIAL GEOGRAPHY (PRACTICAL)

1. Flow chart to show migration trends;
2. Spatial distribution of caste, religion and gender in India using suitable cartographic techniques.

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 Seminar

**CBCS SYLLABUS FOR
UNDERGRADUATE
PROGRAMME COURSE IN
GEOGRAPHY**

**UNIVERSITY OF NORTH BENGAL
RAJA RAMMOHUNPUR
DISTRICT: DARJILING - 734013**

**GEOGRAPHY
PROGRAMME COURSE
CORE COURSE – CC**

FIRST SEMESTER

1. **Course Code: GEO-P-CC-1-01-TH: Physical Geography**
Course Code: GEO-P-CC-1-01-PR: Practical

SECOND SEMESTER

1. **Course Code: GEO-P-CC-2-02-TH: Human Geography**
Course Code: GEO-P-CC-2-02-PR: Practical

THIRD SEMESTER

1. **Course Code: GEO-P-CC-3-03-TH: Regional Development**
Course Code: GEO-P-CC-3-03-PR: Practical

FOURTH SEMESTER

1. **Course Code: GEO-P-CC-4-04-TH: Spatial Information Technology**
Course Code: GEO-P-CC-4-04-PR: Practical

SKILL ENHANCEMENT COURSE - SEC (ANY ONE)

Students will have to choose any one from the given course

THIRD SEMESTER

1. **Course Code: GEO-SEC-A-3-01-TH: Remote Sensing**
or
Course Code: GEO-SEC-A-3-01-TH: Rural Development

FOURTH SEMESTER

2. **Course Code: GEO-SEC-A-4-02-TH: Geographical Information System**
or
Course Code: GEO-SEC-A-4-02-TH: Tourism Management

DISCIPLINE SPECIFIC ELECTIVE - DSE

(Students will choose either Disaster Management or Sustainable Management)

FIFTH SEMESTER

1. **Course Code: GEO-P-DSE-5-01-TH: Disaster Management**
Course Code: GEO-P-DSE-5-01-PR: Practical
or
2. **Course Code: GEO-P-DSE-5-01-TH: Sustainable Development**
Course Code: GEO-P-DSE-5-01-PR: Practical

SIXTH SEMESTER

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

1. Course Code: GEO-P-DSE-6-02-TH: Climate Change: Vulnerability and Adaptation

Course Code: GEO-P-DSE-6-02-PR: Practical

or

2. Course Code: GEO-P-DSE-6-02-TH: Rural Development

Course Code: GEO-P-DSE-6-02-PR: Practical

FIRST SEMESTER
GEOGRAPHY
PROGRAMME COURSE
CORE COURSE – CC

COURSE CODE: GEO-P-CC-1-01-TH

Credits: 04

PHYSICAL GEOGRAPHY

1. Earth's interior with special reference to seismology;
2. Plate Tectonics as a unified theory of global tectonics; Formation of major relief features of the ocean floor and continents according to Plate Tectonics;
3. Folds and faults: Classification and surface expression;
4. Principal geomorphic agents. Classification and evolution of fluvial, coastal, aeolian and glacial landforms.

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.*

COURSE CODE: GEO-P-CC-1-01-PR

Credits: 02

PRACTICAL

1. Construction of scale; plain (linear and comparative), diagonal and vernier scale;
2. Map Projection: Zenithal Gnomonic Projection (Polar Case), Cylindrical Equal Area Projection (Equatorial Case), Simple Conical Projection with one standard parallel, Sinusoidal Projection.

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

Reading List

1. *Farndon, J. 2012. The Illustrated Guide to Rocks & Minerals, Southwater.*
2. *Pillent, C. 2002. Smithsonian Handbooks: Rocks & Minerals, Dorling Kindersley.*
3. *Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.*
4. *Sen, P.K. 1989. Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and Hydrological Parameters, University of Burdwan.*

5. 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: GEO-P-CC-1-01-CE: Class test

SECOND SEMESTER
GEOGRAPHY
PROGRAMME COURSE
CORE COURSE – CC

COURSE CODE: GEO-P-CC-2-02-TH

Credits: 04

HUMAN GEOGRAPHY

1. Introduction: Definition, scope and content of Human Geography;
2. Cultural Regions; Race; religion and language with reference to India;
3. Population growth and distribution with special reference to India;
4. Population-Resource Relationship.

COURSE CODE: GEO-P-CC-2-02-PR

Credits: 02

PRACTICAL

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

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: GEO-P-CC-2-02-CE: Class test

THIRD SEMESTER
GEOGRAPHY
PROGRAMME COURSE
CORE COURSE – CC

COURSECODE: GEO-P-CC-3-03-TH

Credits: 04

REGIONAL DEVELOPMENT (THEORY)

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.

COURSECODE: GEO-P-CC-3-03-PR

Credits: 02

PRACTICAL

1. Interpretation of Indian Topographical maps: plains/plateaus; scale 1:50000 (Broad physiographic divisions, drainage, natural vegetation, settlement, transport and communication, simple profiles and 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: Oxford University Press,1996).
5. Sen, Amratya (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. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalization of India, Census of India*

Important Note: Continuing evaluation will be as follows:

COURSE CODE: GEO-P-CC-3-03-CE: Project report on any rural issue

Project Report:

1. Each student will prepare an individual report based on primary and secondary data.

2. The word count of the report should be about 4000 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 binding.

SKILL ENHANCEMENT COURSE - SEC (ANY ONE)

Students will have to choose any one from the given course

COURSE CODE: GEO-SEC-A-3-01-TH

Credit: 02

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 Chipman 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 IBHPub.

COURSE CODE: GEO-SEC-A-3-01-TH

Credit: 02

RURAL DEVELOPMENT

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, SJSY, 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 ed*, 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 Development*, Concept Publishing.

FOURTH SEMESTER
GEOGRAPHY
PROGRAMME COURSE
CORE COURSE – CC

COURSE CODE: GEO-P-CC-4-04-TH

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 and modelling.
3. Functions of Spatial information system: Information retrieval; Topological modelling; networks; overlay; data output.
4. Application of Spatial Information Technology

COURSE CODE: GEO-P-CC-4-04-PR

Credits: 02

PRACTICAL

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.

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. Hjalton 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: GEO-P-CC-4-04-CE: Seminar

SKILL ENHANCEMENT COURSE – SEC (ANY ONE)

Students will have to choose any one from the given courses

COURSE CODE: GEO-SEC-A-4-02-TH

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, BerlinHeidelberg.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 Infromation 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.*

COURSE CODE: GEO-SEC-A-4-02-TH

Credit: 02

TOURISM MANAGEMENT

1. Tourism: Concepts, nature and scope, inter-relationships of tourism, recreation and leisure; geographical parameters of tourism by Robinson;
2. Type of tourism: Nature tourism, Cultural tourism, Medical tourism, Pilgrimage tourism and Ecotourism;
3. Recent Trends of Tourism: International and regional; domestic (India); Meetings, Incentives, Conventions and Exhibitions (MICE); Case studies of Himalaya, desert, coastal areas and heritage tourism in India;
4. National Tourism Policy of India.

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.*

FIFTH SEMESTER

GEOGRAPHY

DISCIPLINE SPECIFIC ELECTIVE - DSE

(Students will choose either Disaster Management or Sustainable Management)

COURSECODE: GEO-P-DSE-5-01-TH

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.

COURSECODE: GEO-P-DSE-5-01-PR

Credits: 02

PRACTICAL

1. Project report based on any one field based case study among the following disasters:
 - a) Flood
 - b) Landslide
 - c) Human induced disaster: fire, chemical and industrial accidents

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during fieldwork.
2. The word count of the report should be about 4000 to 5000 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. *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.*
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).*

COURSE CODE: GEO-P-DSE-5-01-TH

Credits: 04

SUSTAINABLE DEVELOPMENT

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; the human right to health; 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.

COURSECODE: GEO-P-DSE-5-01-PR

Credits: 02

PRACTICAL

1. 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. Each student will prepare an individual report based on primary and secondary data collected during fieldwork.
2. The word count of the report should be about 4000 to 5000 excluding figures, tables, photographs, maps, references and appendices.
3. One typed copy of the report on A 4 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 de-growth: 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: GEO-P-GE-5-01-CE: Class test

SIXTH SEMESTER
GEOGRAPHY
DISCIPLINE SPECIFIC ELECTIVE - DSE

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

COURSE CODE: GEO-P-DSE-6-02-TH

Credits: 04

CLIMATE CHANGE: VULNERABILITY AND ADAPTATION

1. Science of climate change: understanding climate change; green house gases and global warming; global climatic assessment, IPCC;
2. Climate change and vulnerability: physical vulnerability; economic vulnerability; social vulnerability;
3. Impact of Climate Change: Agriculture and water; flora and fauna; human health;
4. Adaptation and mitigation: global initiatives with particular reference to South Asia.

COURSECODE: GEO-P-DSE-6-02-PR

Credits: 02

PRACTICAL

1. Project report based on climate change field based case study among any one of the following:
 - a) Local level
 - b) National level

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during fieldwork.
2. The word count of the report should be about 4000 to 5000 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.

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.*

COURSE CODE: GEO-P-DSE-6-02-TH

Credits: 04

RURAL DEVELOPMENT

1. Defining Development: Inter-Dependence of Urban and Rural Sectors of the Economy; Need for Rural Development, Gandhian Approach of Rural Development;
2. Rural Economic Base: Panchayat Raj System, Agriculture and Allied Sectors, Seasonality and Need for Expanding Non-Farm Activities, Co-operatives, PURA;
3. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY;
4. Target Group Approach to Rural Development: SJSY, MNREGA, Jan Dhan Yojana and Rural Connectivity.

COURSE CODE: GEO-P-DSE-6-02-PR

Credits: 02

PRACTICAL

1. A case study on socio economic status of the people at any one of the following level:
 - a) Mouza level
 - b) Village level

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during fieldwork.
2. The word count of the report should be about 4000 to 5000 excluding figures, tables, photographs, maps, references and appendices.
3. One typed copy of the report on A 4 size paper should be submitted in soft 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, RawatPubls., 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: GEO-P-GE-6-01-CE: Seminar

**CBCS SYLLABUS FOR
UNDERGRADUATE
GENERIC ELECTIVE COURSE
IN GEOGRAPHY**

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

GEOGRAPHY
GENERIC ELECTIVE
(FIRST/THIRD SEMESTER)

COURSE CODE: GEO-GE-01-TH
PHYSICAL GEOGRAPHY

1. Geography as a discipline: Meaning, scope and content, branches of geography
2. Geotectonics: Origin and evolution of the earth, Interior structure of the earth; Wegener's Continental Drift theory and Plate Tectonic theory
3. Rocks: Major types of rocks and their characteristics,
4. Geomorphic processes: Weathering and mass wasting,
5. Geomorphology: Erosional and depositional features of river, glacier and wind.

COURSE CODE: GEO-GE-01-PR
PRACTICAL

1. Scale: Definition, classification, construction of simple linear 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: GEO-GE-01-TH: Class Test

GEOGRAPHY
GENERIC ELECTIVE
(SECOND/FOURTH SEMESTER)

COURSE CODE: GEO-GE-02-TH
GEOGRAPHY OF INDIA

1. Physiography, climate, natural vegetation and soil
2. Types of settlements, morphology of rural and urban settlements
3. Intensive farming (rice), plantation farming (tea and rubber), horticulture
4. Factors of industrial location, classification of industries, distribution of Iron and Steel industry, Cotton Textile industry
5. Growth and distribution of population; demographic characteristics of population.

COURSE CODE: GEO-GE-02-PR
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)

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,* GyanodayaPrakashan, 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: GEO-GE-02-TH: Class Test