FIRST SEMESTER

GEOGRPHY

HONOURS COURSE

DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-1-01-TH Credit: 04

GEOTECTONIC

1. Earth's tectonic and structural evolution with reference to geological time scale;
2. Earth: Interior structure and theories of Isostasy
3. Earth Movements: Plate Tectonics: constructive, conservative and destructive plate margins and resultant landforms; and sea floor spreading
4. Types of folds and faults and resultant landforms, earthquakes; volcanoes and associated landforms.

COURSE CODE: GEO-H-DSC-1-01- PR Credit: 02

PRACTICALS

1. Scales: Concept and application; graphical construction of plain, comparative diagonal and vernierscales.
2. Map Projections: Classification, properties and uses; Mathematical/graphical construction of Polar Zenithal Stereographic Projection, Bonne's Projection, Mercator's Projections and Universal Transverse Mercator (UTM) Projection.

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

COURSE CODE: GEO-H-DSC-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, karst, aeolian, glacial, and coastal;
4. Slope: Forms and processes

COURSE CODE: GEO-H-DSC-1-02- PR Credit: 02

PRACTICALS

1. Topographical Map: Interpretation of mountain area with the help of cross and longitudinal profiles; interpretation of relief profile: superimposed, projected and composite;Slope Analysis: Wentworth's method and Smith's method.
2. Identification of rocks and minerals: granite, basalt, limestone, shale, sandstone, phyllite, slate, marble, schist, quartzite, bauxite, calcite, chalcopyrite, 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-DSC-1-01: Class Test

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

SECOND SEMESTER

GEOGRPHY

HONOURS COURSE

DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-2-03- H Credit: 04

HUMAN GEOGRAPHY

1. Defining Human Geography; major themes; 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
4. Population-Resource relationship

COURSE CODE: GEO-H-DSC-2-03-PR Credit: 02

PRACTICALS

1. Diagrammatic data presentation: line, bar and circle
2. Thematic Mapping Techniques: properties, uses and limitations; Areal Data: Choropleth, Chorochromatic, Dot, Proportional Cubes; Point Data: Isopleths

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

COURSE CODE: GEO-H-DSC-2-04-TH Credit: 04

SETTLEMENT GEOGRAPHY

1. Settlements: Origin and growth of rural and urban settlements
2. Classification and morphology of settlements;
3. Trends and patterns of world urbanization with special reference to India
4. Theories of urban growth: Concentric Zone Theory; Sector Theory; Multiple Nuclei Theory

COURSE CODE: GEO-H-DSC-2-04-PR Credit: 02

PRACTICALS

1. Concept of levelling and surveying; 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. Thematic maps: Preparation and interpretation by conventional method.

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-DSC-2-03: Term Paper
COURSE CODE: GEO-H-DSC-2-04: Seminar

THIRD SEMESTER
GEOGRPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-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.
3. Atmospheric moisture:evaporation, humidity, condensation, fog and clouds, precipitation types; climatic regions (Koppen)
4. Cyclones: Tropical cyclones, extra tropical cyclones

COURSE CODE: GEO-H-DSC-3-05-PR Credit: 02
PRACTICALS

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

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

COURSE CODE: GEO-H-DSC-3-06-TH Credit: 04
STATISTICAL METHODS IN GEOGRAPHY

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

COURSE CODE: GEO-H-DSC-3-06-PR Credit: 02
PRACTICALS

1. Tabulation of data; frequency distribution table, class group and class interval; Descriptivestatistics: Deciles, Quartiles, Cross Tabulation, Measures of Central Tendency (Mean, Median and Mode), Centrographic techniques,Measures of Dispersion (Standard Deviation, Variance and Coefficient of Variation).
2. Association and Correlation: Rank Correlation, Product Moment Correlation, and Simple Regression.

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

Each student will submit a practical record containing the following exercises:

1. *Construction of a data matrix of about (10 x 10) with each row representing an areal unit (districts or villages or towns) and about 10 columns of relevant attributes of the areal units.*
2. *Based on the above table, a frequency table, measures of central tendency and dispersion to be computed and interpreted for any two attributes*
3. *Based on of the sample set and using two relevant attributes, a scatter and regression line to be plotted with a short interpretation.*

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., 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: GEO-H-DSC-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 utilisation of iron ore, coal, petroleum, gas; agricultural production and distribution of rice and wheat; industrial development: automobile and Information Technology
3. Social: Distribution of population by race, caste, religion, language, tribes and their correlates
4. Regionalisation of India: Physiographic (R.L.Singh), Socio-cultural (Sopher), Economic (Sengupta)

COURSE CODE: GEO- H-DSC-3-07-PR Credit: 02

PRACTICALS

1. Monthly temperature and rainfall graphs of five selected stations from different physiographic regions of India
2. Measuring arithmetic growth rate of population comparing two decadal datasets; 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 Regionalisation 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, GyanodayaPrakashan, 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. PrayagPustakBhawan, 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-DSC-3-05: Report writing

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

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

SKILL ENHANCEMENT COURSE - SEC (ANY ONE)

Students will have to choose <u>any one</u> 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. Image Processing (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised)
4. Satellite Image Interpretation.

5. Application of Remote Sensing: Land Use/Land Cover.

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 IBH Pub*.

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. Area based approach to rural development: Drought prone area programmes, PMGSY
4. Target group approach to rural development: SJSY, MNREGA, Jan DhanYojana and rural connectivity
5. Rural Governance: Panchayati Raj System and rural development policies and programmes in India

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: Leaning 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

GEOGRPHY

HONOURS COURSE

DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-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), Concept of Manufacturing Regions, Special Economic Zones and Technology Parks.
4. Tertiary activities:transport, trade and services.

COURSE CODE: GEO-H-DSC4-08-PR Credit: 02

PRACTICALS

1. Transport network analysis: connectivity and accessibility
2. Representation of state wise variation in occupational structure and work participation rate using proportional circles and proportional divided circles;Composite Index: comparison of developed and backward states

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 Yeung 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-DSC-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-DSC4-09-PR Credit: 02

PRACTICALS

1. Delineation of formal regions by weighted index method; Delineation of functional regions by breaking point analysis
2. Measuring inequality by Location Quotient; Measuring regional disparity by Sopher Index

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. *ClavalP.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, New*

COURSE CODE: GEO-H-DSC-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; space survey (transects and quadrants, constructing a sketch)
4. Defining research problems; objectives and hypothesis

COURSE CODE: GEO-H-DSC-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 8000 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-DSC-4-08: Class Test
COURSE CODE: GEO-H-DSC-4-09: Class Test
COURSE CODE: GEO-H-DSC-4-10: Class Test

SKILL ENHANCEMENT COURSE – SEC (ANY ONE)

Students will have to choose <u>any one</u> from the given course

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; DGPS.
3. GIS Data Structures: Types (spatial and Non-spatial), raster and vector data structure.
4. GIS Data Analysis: Input; geo-referencing; editing, output and query; overlays.
5. 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 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. 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)
4. Tourism in India: Case studies of Himalaya, desert, coastal areas and heritage;
5. National Tourism Policy

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

GEOGRPHY

HONOURS COURSE

DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-5-11-THCredit: 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.
3. Ecosystem: Concept, structure and functions and problems in tropical and temperate ecosystems
4. Environmental programmes and policies: Global, national and regional levels

COURSE CODE: GEO-H-DSC-5-11-PR Credit: 02

PRACTICALS

1. Preparation of questionnaire for perception survey on environmental problems.
2. Project on environmental problems of North Bengal.

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.

Reading List

1. *Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.*
2. *Cunninghum W. P. and Cunninghum 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 BrooksCole, 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, PrayagPustakBhawan. 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-DSC-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-DSC-5-12-PR Credit: 02

PRACTICALS

1. Air photo interpretation (using pocket stereoscope); and satellite imagery interpretation;
2. Image Processing (Digital & Manual), Classification (Supervised & Unsupervised); Georeferencing, 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 3 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-DSC-5-11: Seminar
COURSE CODE: GEO-H-DSC-5-12: Class Test

ELECTIVE DISCIPLINE SPECIFIC-DSE (ANY TWO)

(*Students will have to choose any two course, from 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 growth; Malthusian Theory and Demographic Transition 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, utilisation, problems and management of land resources and water resources
3. Distribution, utilisation, problems and management of forests and energy resources
4. Appraisal and conservation of natural resources, sustainable resource development

COURSE CODE: GEO-H-DSE-5-01-PR Credit: 02
RESOURCE GEOGRAPHY (PRACTICAL)

1. Mapping of landuse/land cover
2. Computing Human Development Index: comparative decadal change of top five Indian states

Reading List

1. *Cutter S. N., Renwich 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.*

COURSE CODE: 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
4. Urban Issues: problems of housing, slums, civic amenities (water and transport), Case studies of urban centres in North Bengal with reference to land use and urban problems

COURSE CODE: 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 urbanisation; 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. 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, Blue, Pink

COURSE CODE: GEO-H-DSE-5-02-PR **Credit: 02**

AGRICULTURAL GEOGRAPHY (PRACTICAL)

1. Measurement of agricultural efficiency (Bhatia, Martin-Gibbs methods)
2. Measurement of cropping intensity (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
GEOGRPHY
HONOURS COURSE
DISCIPLINE SPECIFIC CORE COURSE -DSC

COURSE CODE: GEO-H-DSC-6-13-THCredit: 04
EVOLUTION OF GEOGRAPHICAL THOUGHTS

1. Development of geographical thought: Pre-modern,early origins of geographical thinking with reference to the classical and medieval periods;
2. Modern:evolution of geographical thinking and disciplinary trends in Germany, France, Britain, United States of America.
3. Debates: Environmental Determinism and Possibilism, Systematic and Regional
4. Trends: Quantitative Revolution and its impact, Behaviouralism, Feminism; towards Post Modernism;changing concept of space in Geography, future of Geography.

COURSE CODE: GEO-H-DSC-6-13-PRCredit: 02
PRACTICALS

1. Quantitative techniques in geography: Chi square, standard score, ranking coefficient by Kendall
2. Crop combination by Weber, Rafiulla and Doi

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

Reading List

1. *Arentsen M., Stam R. and Thuijis 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.*

COURSE CODE: GEO-H-DSC-6-14-TH Credit: 04
DISASTER MANAGEMENT

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

COURSE CODE: GEO-H-DSC-6-14-PR Credit: 02
PRACTICALS

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

b) Flood
c) Landslide
d) Earthquake
e) Human induced disaster

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 A 4 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-DSC-6-13: Seminar
COURSE CODE: GEO-H-DSC-6-14: Class Test

DISCIPLINE SPECIFIC ELECTIVE - DSE

(*Students will have to choose any two course, from Advanced Cartography or Political Geography and Hydrology & Oceanography or Social Geography*)

COURSE CODE: 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 ofPolar Zenithal Equal Area, Polar Zenithal Equidistant, Polar Zenithal Gnomonic; Simple Conical Projection with two standard parallels; International 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, Polar Zenithal Gnomonic; 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.*

COURSE CODE: GEO-H-DSE-6-03-TH **Credit: 04**

POLITICAL GEOGRAPHY (THEORY)

1. Introduction: Concepts, nature and scope.
2. State, Nation and Nation State: Concept of Nation and State, Attributes of state: frontiers, boundaries, shape, size, territory and sovereignty, concept of nation state; geopolitics; theories (Heartland and Rimland)
3. Political Geography of resource conflicts:water sharing disputes, disputes and conflicts related to forest rights and minerals.
4. Politics of displacement: Issues of relief, compensation and rehabilitation: with reference to dams and Special Economic Zones

COURSE CODE: GEO-H-DSE-6-03-PR **Credit: 02**

POLITICAL GEOGRAPHY (PRACTICAL)

1. Preparation of spatial distribution maps of India: gender, caste, religion; Analysis of migration data: (a) rural to urban and (b) urban to urban migration
2. Preparation for Social Impact Assessment (checklist of indices only)

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, Routledg Mathur H M and M MCernea (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. River Basin and problems of regional hydrology: Characteristics of river basins, basin surface run-off, measurement of river discharge; floods and droughts.

3. Ocean floor topography and oceanic movements: Waves, currents and tides, ocean salinity and temperature – distribution and determinants.
4. Coral Reefs and marine deposits and ocean resources: types and theories of origin; biotic, mineral.

COURSE CODE: GEO-H-DSE-6-04-PR **Credit: 02**
HYDROLOGY AND OCEANOGRAPHY (PRACTICAL)

1. Morphometric analysis of any river basin from topographical map
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. Peopling process of India: technology and occupational change; migration.
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, social geographies of inclusion and exclusion, 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 proportional circles and proportional divided circles

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, Ithasa*
11. *Valentine G., 2001: Social Geographies: Space and Society, Prentice Hall.*

Important Note: Continuing evaluation for all Discipline Specific Elective will be Seminar