

Syllabus 2018-2019
B.A. / B.Sc. (Hons) I Semester (CBCS)

GGB151 :GEOMORPHOLOGY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

- Unit I Nature and scope of Geomorphology: constitution of earth interior on the basis of evidence from seismology, temperature, density, pressure and chemical composition. Isostasy: concept of Airy and Pratt.
- Unit II Earth Movements: Orogenetic and epirogenetic movement and their resultant structure- folds and faults, Earthquakes and Volcanoes- their distribution, causes, consequences and preparedness. Plate Tectonics Theory.
- Unit III Geomorphic Processes: Weathering, Mass Wasting, A critical analysis of the concept of Cycle of Erosion given by Davis and Penck.
- Unit IV Geomorphic agents and process: the work of running water, erosional and depositional landforms of the Fluvial, Aeolian, Coastal, Glacial and Karst topography.

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. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Publications, Meerut
11. Tikkaa, R N (1989): *Bhautik Bhugol ka Swaroop*, Kedarnath Ram Nath, Meerut
12. Singh, S (2009): *Bhautik Bhugol ka Swaroop*, Prayag Pustak, Allahabad

Syllabus 2018-2019

B.A. / B.Sc. (Hons) I Semester (CBCS)

GGB-1P1 :Cartographic Techniques (Practical)

Credit	:02
Continues Evolution	:40
End Term	:60
Total	:100

1. Maps and Scale:

Nature and Scope of Cartography, classification and significance of maps. Scales – Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales.

2. Interpretation of Topographical Map:

Study and interpretation of Plain and Mountainous areas. Cross section and longitudinal profile of different relief features.

3. Basic Principles of Surveying:

Plain Table survey: general principles, radiation and intersection methods.

Practical Record: A Project File in pencil, comprising one exercise *each*, on scale, map projection, interpretation of topographic sheet.

Reading List

1. Anson R. and Ormelling F. J., 1994: *International Cartographic Association: Basic Cartographic Vol.* Pregmen Press.
2. Gupta K.K. and Tyagi, V. C., 1992: *Working with Map*, Survey of India, DST, New Delhi.
3. Khan Jabir, Hasan, T & Shamshad, Scales, Academic Publications, 2014
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. Rhind D. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International Cartographic Association.
7. Robinson A. H., 2009: *Elements of Cartography*, John Wiley and Sons, New York.
8. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
9. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
10. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
11. Singh R L & Rana P B Singh(1991) *Prayogtmak Bhugol ke Mool Tatva*, Kalyani Publishers, New Delhi
12. Sharma, J P (2010) *Prayogtmak Bhugol ki Rooprekha*, Rastogi Publications, Meerut
13. Singh, R L & Dutta, P K (2012) *Prayogtmak Bhugol*, Central Book Depot, Allahabad.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) II Semester (CBCS)
GGB251 :HUMAN GEOGRAPHY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

Unit I Introduction: Meaning and Scope of Human Geography; Major Themes; Environmental Determinism, Possibilism, Neo-determinism, their contemporary relevance.

Unit II Space and Society: Major cultural regions, distribution and characteristics of race, Religion and Language.

Unit III Population-Resource Relationship; Optimum, Over Population, Under Population, their problem and prospects, Population Growth and Distribution; Population Composition; Demographic Transition Theory.

Unit IV Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization.

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. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
7. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.
8. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur

Syllabus 2018-2019
(CBCS)
B.A. / B.Sc. (Hons) II Semester

GGB-2P1: Thematic Cartography (Practical)

Credit	:02
Continues Evolution	:40
End Term	:60
Total	:100

1. Maps – Classification and Types.
2. Diagrammatic Data Presentation – Line graph, proportional circle.
3. Thematic Mapping Techniques – Properties, Uses and Limitations; Areal Data -- Choropleth, Dot, Point Data – Isopleths.
4. Study and interpretation of two weather maps of India.
5. Prismatic Compass Survey; Open and Closed.

Practical Record: A Thematic Atlas should be prepared on a specific theme with five plates of any state in India.

Reading List

1. Cuff J. D. and Mattson M. T., 1982: *Thematic Maps: Their Design and Production*, Methuen Young Books
2. Dent B. D., Torguson J. S., and Holder T. W., 2008: *Cartography: Thematic Map Design* (6th Edition), McGraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C., 1992: *Working with Maps*, Survey of India, DST, New Delhi.
4. Khan Jabir, Hasan, T & Shamshad, Scales, Academic Publications, 2014
5. Kraak M.-J. and Ormeling F., 2003: *Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall.
6. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
7. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
8. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
9. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
10. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.
11. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
12. Singh, L R & Singh R (1977): *Manchitra or Pryaogatamek Bhugol* , Central Book, Depot, Allahabad.
13. Bhopal Singh R L and Dutta P K (2012) *Prayogatama Bhugol*, Central Book Depot, Allahabad

Syllabus 2018-2019
B.A. / B.Sc. (Hons) III Semester (CBCS)

GGB351 :CLIMATOLOGY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Weather and climate, elements of climate; Composition and Structure of atmosphere; Insolation; Heating and cooling of the atmosphere. Heat Budget and latitudinal haet balance. Adiabatic processes, stability and instability.
2. Atmospheric Temperature. Factors controlling the temperature; horizontal and vertical distribution of temperature.. Inversion of temperature. Atmospheric pressure: Vertical and horizontal distribution of pressure. Atmospheric moisture: forms of precipitation and types of rainfall.
3. Winds: Planetary, periodic and local winds (Loo, Mistral, Fohn, and Chinook), factors affecting the winds; General circulation of winds. Origin of the Monsoon and its relation with Jet streams.
4. Air Masses and Fronts: concepts, classification and properties. Tropical and Temperate cyclones (Polar front theory); Anti-cyclone. Basis of Koppen's classification; Types and characteristics.

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. Gupta L S(2000): *Jalvayu Vigyan*, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Lal, D S (2006): *Jalvayu Vigyan*, Prayag Pustak Bhavan, Allahabad
9. Vatal, M (1986): *Bhautik Bhugol*, Central Book Depot, Allahabad
10. Singh, S (2009): *Jalvayu Vigyan*, Prayag Pustak Bhawan, Allahabad

Syllabus 2018-2019
B.A. / B.Sc. (Hons) III Semester (CBCS)

GGB3P1 :Statistical Methods in Geography (Practical)

Credit	:2
Continuous Evaluation	:40
End Term	:60
Total	:100

1. Use of Data in Geography: Geographical Data Matrix, Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio).
2. Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles), Cross Tabulation, Central Tendency (Mean, Median and Mode, Centro-graphic Techniques, Dispersion (Standard Deviation, Variance and Coefficient of Variation).
3. Sampling: Purposive, Random, Systematic and Stratified.

Class Record: Each student will submit a record containing five exercises:

1. Construct 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 would be computed and interpreted for any two attributes.
3. Histograms and frequency curve would be prepared **on the entire data set** and attempt to fit a normal curve and interpreted for one or two variables.
4. From the data matrix a sample set (20 Percent) would be drawn using, random - systematic and stratified methods of sampling and locate the samples on a map with a short note on methods used.

Reading List

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.
3. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
4. Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
5. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi.
6. Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
7. Spiegel M. R.: *Statistics, Schaum's Outline Series*.
8. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) IV Semester (CBCS)

GGB451: GEOGRAPHY OF INDIA

Credit	:4
Sessional	:30
End Term	:70
Total	:100

Unit I Physiography and Drainage: Physiographic Divisions-The Great Himalyas, Indo-Gangetic Plain and the Peninsular Plateau. Nature and characteristics of Himalayan Drainage and Peninsular Drainage; Differences between Himalayan Drainage and Peninsular Drainage.

Unit II Climate, Soils and Natural Vegetation: characteristics of climate; origin of monsoon- Halley's and Flohn's concepts, classification of climate given by Koppen: Soils-factors of soil formation; types and characteristic of soils. Natural Vegetation-factors for the growth and distribution of Natural Vegetation; types and characteristics of Natural Vegetation.

Unit III Population and Social Geography; Population distribution, growth, and structure, distribution of race, caste, religion, language, tribes and their correlates.

Unit IV Economic Geography: Distribution and utilization of iron ore, coal, petroleum; Agricultural production and distribution of rice and wheat, problems and prospects of cotton textile industry; Trends and Development of Iron and Steel Industry.

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*, Gyanodaya Prakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) IV Semester (CBCS)
GGB4P2: Cartography and Surveying (Practical)

Credit	:2
Continuous Evaluation	:40
End Term	:60
Total	:100

- Representation of socio-economic data with the help of diagram.
 - * Bar diagram (simple, multiple and divided).
 - * Wheel diagram
- Importance of dumpy level and its uses. Plotting of longitudinal sections by rise and fall method.
- Sextant - Use of Sextant – calculation of horizontal and vertical distance.

BOOKS RECOMMENDED:-

1. Bygott, J. , Mapwork and Practical Geography.
2. Ishtiaque, M. , A Textbook of Practical Geography.
3. Mahmood, Aslam, Statistical Techniques in Geographical Studies, Rajesh publishers, New Delhi.
4. Misra, R.P. , & Ramesh, A. , Fundamentals of Cartography, Mac Millan, New Delhi, 1986.
5. Monkhouse, F.J. , Maps and Diagrams.
6. Singh, R. , & Singh, L.R. , Mapwork and Practical Geography.
7. Singh, R.L., Elements of Practical Geography.

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B.A. / B.Sc. (Hons) V Semester (CBCS)

GGB551: Regional Planning and Development

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Concept, Need and Types of regional Planning
2. Characteristics of an Ideal Planning Region; Delineation of Planning Region;
3. Regionalization of India for Planning (Agro Ecological Zones)
4. Models for Regional Planning: Growth Pole Model of Perroux; Growth Foci Model in Indian Context; Village Cluster
5. Backward Regions and Regional Plans- Special Area Development Plans in India; DVC The Success Story and the Failures.

RECOMMENDED BOOKS

1. Bhat, L.S., 1973, *Regional Planning in India*, Statistical Publishing Society, Calcutta.
2. Chandana, R.C., 2000, *Regional Planning*, Kalyani Publishers, Ludhiana.
3. Chand, M., Puri, & V.K., 1983, *Regional Planning in India*, Allied Publishers, ND.
4. Friedman, J., & Alonso, W., 1967, *Reg. Dev. and Planning – A Reader*, MIT Press, Cam, Hars.
5. Glasson, 1980, *Regional Planning*, Hutchinson, London
6. Glikson, A., 1955, *Regional Planning and Development*, Netherlands, Universities Foundation of International Co - operation, London.
7. Mishra, R.P., 1969, *Regional Planning*, Concepts, Techniques and Policies, University of Mysore, Mysore.
8. Mishra, R.P., et. al., 1974, *Regional Development and Planning in India*, Institute of Development Studies, Mysore.
9. Mitra, A., 1965, *Levels of Regional Development, Census of India*, Vol. 1, Part I (A) and (B).
10. Ray Chaudhary, J., 2001, *An Introduction to Development and Regional Planning*, Orient Longman, Hyderabad.

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B.A. / B.Sc. (Hons) V Semester (CBCS)

GGB552: Population Geography

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Defining the Field – Nature and Scope; Sources of Data with special reference to India (Census, Vital Statistics and NSS).
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.
5. Contemporary Issues – Ageing of Population; Declining Sex Ratio; HIV/AIDS.

BOOKS RECOMMENDED:

1. Clarke, J.I., Population Geography, Pergamon Press, Oxford, 1972.
2. Trewartha, G.T., A Geography of Population, World patterns, John Wiley & Sons, Inc., New York.
3. Khan, J.H. Socio-Economic & Structural Analysis of Internal Migration, New Delhi 2010.
4. Trewartha, G.T., The Less Developed Realm - A Population Geography, McGraw Hill, New York, 1972.
5. Chandna, R.C., A Geography of Population: Concepts, Determinants and patterns, Kalyani publishers, New Delhi, 1986.
6. Singh, R.L., et., al. Readings in Rural Settlement Geography, Varanasi 1972.
7. Chisholm, M., Rural Settlements and Landuse, London, 1970.
8. Hudson, F.S., A Geography of Settlements, McDonald and Evans., N.D., 1976.
9. Wanmali, S., Service Centers in Rural India, B.R. Publication, Delhi, 1983.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) V Semester (CBCS)
GGB553: Resource Geography

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Natural Resource: Concept, Classification and Role of Technology in Resource Development.
2. Natural Resource: Forest Resources- Classification, Deforestation, Economic and Ecological Significance of Forests: Soil Resources- Classification and Distribution of World Soils, Soil Erosion and its Causes: Water Resources-Utilization of Fresh Water and Marine Water Resources.
3. Human Resources: Concept of Human Resources, Factors Affecting the Human Resource Development.
4. Conservation of Natural Resources: (Soil Conservation, Water Conservation, Forest Conservation and Energy Conservation).
5. Sustainable Resource Development

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, New York.
2. Gadgil M. and Guha R., 2005: *The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity*, Oxford University Press. USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: *Natural Resources: Ecology, Economics and Policy*, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: *Resources, Society and Environmental Management*, Paul Chapman, London.
5. Klee G., 1991: *Conservation of Natural Resources*, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: *Environmental Resources*, John Wiley and Sons, New York.
7. Mitchell B., 1997: *Resource and Environmental Management*, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge University Press, New York.
9. Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge.London.

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B.A. / B.Sc. (Hons) V Semester (CBCS)

GGB554: Urban Geography

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Urban geography: Introduction, nature and scope; history of urbanisation
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 and transport.
5. Case studies of Delhi, Mumbai and Kolkata with reference to Urban Issues.

BOOKS RECOMMENDED:-

1. Carter, Herold, The study of urban Geography, Edward Arnold, London , 1972.
2. Turner, Roy (ed), India's urban future, Oxford University Press, Bombay 1962.
3. Dickinson, R.E., City region and regionalism, Paul, Trench, Trubner & Co. Lond , 1947
4. Mayer, H.M. & Kohn, C.F., Readings in urban Geography, Chicago printing press, Chicago.
5. R.C. Putham etc, Geography of urban places.
6. Ashish, Bose, Studies in India's urban, 1961 – 1971.
7. Friedann, J & Alonson, W. Regional development and planning.
8. Mitra, A., Levels of regional development in India.
9. Sengupta, P., & Sadasyuk, G.U., Economic regionalization of India: Problems & Approaches.
10. Munir, A., Agricultural Productivity and regional development, Delhi, 1992.
11. Sayeed, A. Khan, Hierarchy of service center in Trans – Ghaghara plain.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) V Semester (CBCS)
GGB555: Agricultural Geography

Credit	:4
Sessional	:30
End Term	:70
Total	:100

Unit I Definition, Nature and Scope of Agricultural Geography, Origin and Development of Agricultural Geography.

Unit II Determinants of Agriculture: Soil, Mechanization, High Yielding Variety of Seeds, NPK fertilizers, Irrigation and Pests control, size of land holding and Kisan Credit Card.

Unit III Agricultural Regions: Agro-climatic Regions and Agricultural Productivity Regions.

Unit IV Agricultural Systems of the World: Whittlesey's classification and Von Thuenen model and its relevance.

Unit V Agricultural Revolutions in India: Green Revolution with special reference to wheat, paddy and maize. History and Development of dairy farming and fisheries.

BOOKS RECOMMENDED:

1. Hussain, M., Agricultural Geography, New Delhi, 1979.
2. Symons, I., Agricultural Geography, London, 1964.
3. Leong & Morgan, Human and Economic Geography, Hong Kong,
4. Deman, N.L., Agriculture and Rural Development in India.
5. Clont, S.D., Rural Geography.
6. Murthy, W.L. & Narayana, K.V., Rural Economy of India, Delhi.
7. Tewari, R.T., & Sinha, R.C., Rural Development in India, New Delhi, 1988.
8. Alexander, T.W., Economic Geography, Prentice Hall, Englewood cliffs, N.J. (Latest Edition).
9. Gregory, Howard, F., Geography of Agriculture: Themes in Research, Prentice Hall Englewood cliffs, N.J., 1970.
10. Singh A.L. and Fazal. S., Agriculture and Rural Development, B.R. Publishers, New Delhi- 1998

Syllabus 2018-2019
B.A. / B.Sc. (Hons) V Semester (CBCS)
Climate Change: Vulnerability and Adaptation

Credit	:2
Sessional	:30
End Term	:70
Total	:100

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 Problem and prospects.
5. National Action Plan on Climate Change; Local Institutions to mitigate and Adaptations towards resilience path.

BOOKS RECOMMENDED:

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? Organisation 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.*

Syllabus 2018-2019
B.A. / B.Sc. (Hons) V Semester (CBCS)
Ecology and Environment

Credit	:2
Sessional	:30
End Term	:70
Total	:100

1. Principles of Ecology and Environment:
 - Meaning and concept of Ecology and Environment.
 - Biosphere, Ecosystems, habitat and man environmental relationship.
 - Human Ecology and Adaptations.
2. Biomes of the World (Equatorial and Tundra), Biodiversity and its significance with reference to India, Hot Spot in India. Case Study of Western Ghat, conservation measures.
3. Environmental Degradation; Pollution (water and air), causes and consequences of Environmental Imbalances, Environment and development.
4. Environmental Legislation and Policies, concept of sustainable Development.

BOOKS RECOMMENDED:

1. Charles, J. krebs; Ecology, 2016.
2. Eugene P., Odum : Ecology: A Bridge between Science and Society, 2018.
3. S.V.S. Rana: Essentials of Ecology and Environmental Science, Prentice Hall of India, New Delhi, 2003.
4. Sexena, S.M. : Environmental Geography, Rawat Pub., 2004.
5. 5. Savinder Singh, Environmental Geography, Prawartika Pub. 2006.
6. Puri, G.S., Indian forest Ecology, New Delhi.
7. Odum, Eugene P., Fundamentals of Ecology, Philadelphia, 2004.

Syllabus 2018-2019
B.A. / B.Sc. (Hons) V Semester (CBCS)
Disaster Management

Credit	:2
Sessional	:30
End Term	:70
Total	:100

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. Manmade disasters: Causes, Impact, Distribution and Mapping.
5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post Disasters.

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).

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GGB591: Basics of Geography

Credit	:4
Sessional	:30
End Term	:70
Total	:100

Unit I Meaning and scope of Geography, Solar System, Rotation and Revolution of Earth, International Date Line (IDL), Latitude and Longitude, Calculation of Time.

Unit II Lithosphere-Structure of Earth, Types of rocks-Igneous rock, Metamorphic rock and sedimentary rock and their importance.

Unit III Structure and Composition of Atmosphere, Wind System, Cyclone and Anticyclone, Jet Stream, Monsoon, El-Nino, La-Nina, Global Warming.

Unit IV Hydrosphere – Hydrological Cycle, Ocean Current, Tide, Waves, Tsunami.

Unit V Biosphere- Biosphere as an Ecosystem, Biogeochemical Cycle, Bio-diversity and its importance, Forest conservation and Management, National Forest Policy.

Recommended Books:

1. Majid Hussain, Fundamentals of Physical Geography, Rawat Publication, New Delhi.
2. Gohchingleong, Certificate of Physical and Human Geography.
3. D.R. Khullar, India- A Comprehensive Geography.
4. D.R. Khullar, Practical Geography.

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GGB5P1: Aerial Photo interpretation and Remote Sensing (Practical)

Credit	:04
Continuous Evaluation	:40
End Term	:60
Total	:100

1. Aerial Photo Interpretation

History and development of aerial photogrammetry. Application of their techniques in Geography. Aerial photograph and its index marks

2. Types and Interpretation of Aerial Photographs

Types and utility of aerial photographs. Chief elements of aerial photo interpretation: Size, shape, ton, texture, pattern and location association.

3. Remote Sensing Concepts

Introduction to remote sensing, basic concepts in remote sensing, Importance, development and application of remote sensing in geographical studies.

4. Remote Sensing Platforms and Image Interpretation

Remote sensing platform and sensors- Active and Passive. Visual and digital image interpretation.

BOOKS RECOMMENDED:-

1. Attends, Georgie., Applied Remote Sensing, CPLO.
2. Barrett & Curtis., Introduction to Environmental Remote Sensing.
3. Barrett & Curtis., Remote Sensing of Terrestrial Environment.
4. Currian., Practical of Remote Sensing.
5. Dickinson., Maps and photographs.
6. Michael, R.H., Remote Sensing: Methods and Applications.
7. Sabin., Remote Sensing.
8. Swain & Davis., Remote sensing: The quantitative Approach.

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GGB5P2:Advanced Spatial Statistical Techniques (Practical)

Credit	:04
Continuous Evaluation	:40
End Term	:60
Total	:100

Unit 1 Statistics and Statistical Data: Spatial and non-spatial; indices of inequality (Range, Lorenz curve, Coefficient of variation).

Unit II Chi-square test, Normal distribution and characteristics of normal curve.

Unit III Correlation Analysis: Definition and concept of correlation: Rank order correlation and product moment correlation.

Unit IV Regression Analysis: Definition and concept of regression: linear regression, residual from regression.

BOOKS RECOMMENDED:-

1. Mahmood, Aslam., Statistical Methods in Geographical studies.
2. Alvi Zamiruddin., Statistical Geography.
3. Ebden, D., Statistics in Geography (Practical Approach).
4. Gregory, S., Statistical Methods and the Geographer.
5. King, L.J., Statistical Analysis in Geography
6. Simpson, G. & Kafka, F., Analysis in Geography.
7. Mathematics for Physical Geographers.

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GGB5P3: Astronomy and Map Projection (Practical)

Credit	:04
Continuous Evaluation	:40
End Term	:60
Total	:100

Astronomy

General explanation of the objects of field of astronomy. History and development of Astronomy, latitudes, longitudes, altitudes, declination, azimuth, celestial horizon, great circles and small circles, zenith, nadir, hour angle, right ascensions.

Time: Types, local and standard times, longitude and time, International Date Line

Map Projection

General principles, classification, Construction, properties, limitations and uses of the following projections:

- a. Cylindrical:** Equal Area and Mercator's.
- b. Conical Projections:** One standard conical, two standard, Conical, Bonne's.
- c. Zenithal Projections:** Gnomonic, Stereographic, Orthographic.

BOOKS RECOMMENDED:-

1. Kellewey, George, P., Map Projections
2. Steers, J.A., Map Projections
3. Singh, R.L., Elements of Practical Geography
4. Gernet, William, Map Projection
5. James, A.H., & Ormsay, M.T.M. Mathematical Geography
6. Singh, L.R., Map work and Practical Geography

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GGB651: EVOLUTION OF GEOGRAPHICAL THOUGHT

Credit	:4
Sessional	:30
End Term	:70
Total	:100

Unit I General characteristics of geography in ancient period. Contribution of Herodotus, Strabo, Eratosthenes and Ptolemy in the development of geographical thought.

Unit II General characteristics of geographical thought during Arab period. Dark- age. Contribution of important philosophers - Al - Masaudi, Al - Biruni and Ibn-Khaldun.

Unit III Founders of modern geographical thought. Contribution of Humboldt and Ritter; Contribution of French and British schools of geography with special reference to Vidal-De-Ia- Blache and Mackinder.

Unit IV Concepts in geography: Environmental determinism, possibilism, and stop and go determinism. Development of geographical thought after Second World War- A critical study of Quantitative revolution, Radical Geography and behavioral geography.

BOOKS RECOMMENDED:

1. Adhikari, S., Fundamentals of Geographical Thought, Allahabad.
2. Ali, S.M., Arab Geography. Aligarh.
3. Ali, S.M.Z., Arab's Contribution to the Geography during 9th and 10th Centuries, A.D. Aligarh.
4. Dickinson, R.E. The Makers / Modern Geography, London.
5. Dixit, R.D. Geographical Thought' A Contextual History / Ideas, Delhi.
6. Hartshorne, R, Perspective on the Nature of Geography, Chicago.
7. Hussain, M., Evolution of Geographical thought. Delhi.
8. James, R.E., All possible world: A History of Geographical Ideas, New York.

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GGB652: GEOGRAPHY OF HEALTH AND WELLBEING

Credit	:4
Sessional	:30
End Term	:70
Total	:100

1. Perspectives on Health: Definition; linkages with environment, development and health; driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality.
2. Pressure on Environmental Quality and Health: Human activities and environmental pressure land use and agricultural development; industrialisation; transport and energy.
3. Exposure and Health Risks: Air pollution; household wastes; water; housing; workplace.
4. Health and Disease Pattern in Environmental Context with special reference to India, Types of Diseases and their regional pattern (Communicable and Lifestyle related diseases).
5. Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents; food production and nutrition.

Reading List:

1. Akhtar Rais (Ed.), 1990 : Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Avon Joan L. and Jonathan A Patzed.2001 : Ecosystem Changes and Public Health,Baltimin, John Hopling Unit Press(ed).
3. Bradley,D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.
4. Christaler George and Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
5. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
6. Gatrell, A.,and Loytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
7. Hardham T. and Tannav M.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
8. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.
9. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
10. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
11. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

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GGB653: POLITICAL GEOGRAPHY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

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. Electoral Geography – Geography of Voting, Geographic Influences on Voting pattern, Geography of Representation, Gerrymandering.
4. Political Geography of Resource Conflicts – Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals.
5. Politics of Displacement: Issues of relief, compensation and rehabilitation: with reference to Dams and Special Economic Zones.

Reading List

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

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GGB654: HYDROLOGY AND OCEANOGRAPHY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

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.
4. Ocean Salinity and Temperature – Distribution and Determinants.
5. Coral Reefs and Marine Deposits and Ocean Resources: Types and Theories of Origin; Biotic, Mineral.

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. Anikouchine W. A. and Sternberg R. W., 1973: *The World Oceans: An Introduction to Oceanography*, Prentice-Hall.
7. Garrison T., 1998: *Oceanography*, Wordsworth Company, Belmont.
8. Kershaw S., 2000: *Oceanography: An Earth Science Perspective*, Stanley Thornes, UK.
9. Pinet P. R., 2008: *Invitation to Oceanography* (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
10. Sharma R. C. and Vatal M., 1980: *Oceanography for Geographers*, Chaitanya Publishing House, Allahabad.
11. Sverdrup K. A. and Armbrust, E. V., 2008: *An Introduction to the World Ocean*, McGraw Hill, Boston.
12. 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.

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GGB655: SOCIAL GEOGRAPHY

Credit	:4
Sessional	:30
End Term	:70
Total	:100

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 Well being: Concept and Components – Healthcare, Housing and Education.
5. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.

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.

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GGB6P1: Disaster Management based Project Work (Practical)

Credit	:04
Continues Evolution	:40
End Term	:60
Total	:100

The Project Report based on any two field based case studies among following disasters and one disaster preparedness plan of respective college or locality:

1. Flood
2. Drought
3. Cyclone and Hailstorms
4. Earthquake
5. Landslides
6. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents

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 Oppurtunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

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GGB6P2: SOCIO-ECONOMIC SURVEY AND REPORT WRITING
(Practical)

Credit	:04
Continues Evolution	:40
End Term	:60
Total	:100

Objective: The main objective of field studies is to provide the students with the understanding of ground reality of a chosen Village/Town by observation, Conducting socio-economic survey of the Urban household/village with the help of a questionnaire, mapping of data, landuse and cropping pattern.

UNIT I: Methods of Field work: Types of data, Techniques of primary data collection: Sampling, Preparation of a questionnaire. Significance of field work in Geographical studies.

UNIT II: Conduct a socio-economic survey of the Urban Households with the help of a questionnaire. Supplement the information by personal observations and perceptions.

UNIT III: Procure a Cadastral map of the Village for field mapping of the features of the landuse, settlement and other prominent features. Conduct a socio-economic survey of the Village. Supplement the information by personal observations and perceptions.

UNIT IV: Based on the results of socio-economic and landuse enquiry, prepare a Field Survey Report both for Urban and Village survey. Maps, diagrams, photographs and sketches should support the report.

RECOMMENDED BOOKS

1. Archeer, J.E. and Dalton, T.H. Fieldwork in Geography, London, 1968.
2. Glodard, R.H., Field Techniques and Research Methods in Geography, Dubuque, 1982.
3. Jones, P.A., Fieldwork in Geography, London, 1968
4. Mohammad, A.C., Statistical Methods in Geographical Studies, Rajesh Publication, Delhi, 1977.
5. Wheeleso, K.S. and Harding, M., Geographical Fieldwork, London, 1965.

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GGB6S1: SEMINAR PRESENTATION

Credit	:04
Continues Evolution	:40
End Term	:60
Total	:100

Topics

1. Regional imbalances in India: Its causes and Consequences.
2. Problems of Urbanization in India.
3. Poverty and Inequality in India.
4. Population Explosion - Causes and Consequences.
5. Rural Development: Its Programmes and Policies.
6. Disaster Management with reference to Earthquake/Drought/Flood.
7. Air Pollution and Human Health.
8. Water Pollution and Human Health.
9. Climate Change and its Impact.
10. Impact of Green Revolution on Indian Agriculture.

Note:

1. The topic will be assigned by the teacher for report Writing & presentation. The report should not exceed 25 pages (A4 size, Times New Roman size 12 font, 1 inch all sides margin).
2. Report should cover the following points
 - i. Introduction & Significance
 - ii. Conceptual Framework
 - iii. Analysis/Discussion
 - iv. Conclusion & Suggestions
