

**DEPARTMENT OF GEOGRAPHY
FACULTY OF NATURAL SCIENCES
JAMIA MILLIA ISLAMIA
NEW DELHI - 110 025**

(A Central University by an Act of Parliament)



B.A. / B.Sc. (H) Geography

Syllabus (w.e.f. 2015-2017)

Course Structure B.A. / B.Sc. (H) Geography (Code- H)

Semester - I

Paper No./ Code	Title	Credit	Type
GEB-101(H) (Paper I)	Geomorphology	4	CC
GEB-102(H) (Paper II)	Climatology	4	CC
GEB-103(H) (Paper III)	Fundamentals of Remote Sensing	4	CB

Semester - II

Paper No./ Code	Title	Credit	Type
GEB-201(H) (Paper IV)	Oceanography and Hydrology	4	CC
GEB-202(H) (Paper V)	Principles of Ecology	4	CB
GEB-203(H) (Practical I)	Map Interpretation	4	CC
GEB-204 (H) (Practical II)	Cartographic Techniques	4	CC

Semester - III

Paper No./ Code	Title	Credit	Type
GEB-301 (Paper VI)	Man and Environment	4	CC
GEB-302 (Paper VII)	World Regional Geography	4	CC
GEB-303 (Paper VIII)	Disaster Management	4	CC
GEB-304 (Practical III)	Land Surveying and GPS	4	AECC

Semester - IV

Paper No./ Code	Title	Credit	Type
GEB-401(H) (Paper IX)	Economic and Resource Geography	4	CC
GEB-402 (H) (Paper X)	Geography of India	4	CC
GEB-403(H) (Paper XI)	Environmental Issues and Management	4	CB
GEB-404(H) (Practical IV)	Statistical Techniques in Geography	2	CC

Semester - V

Paper No./ Code	Title	Credit	Type
GEB-501(H) (Paper XII)	Regional Development and Planning	4	CC
GEB-502(H) (Paper XIII)	Evolution of Geographical Thought	4	CC
GEB-503(H) (Paper XIV)	Population and Development	4	CB
GEB-504(H) (Practical V)	Photo and Image Interpretation	2	CC

Semester - VI

Paper No./ Code	Title	Credit	Type
GEB-601(H) (Paper XV)	Urban Geography	4	CC
GEB-602(H) (Paper XVI)	Agriculture Geography	4	CC
GEB-603 (H)	Project	4	CC
GEB-604(H) (Practical VI)	GIS	4	SEC

GRAND TOTAL

Semester	Core Course (CC)			Choice Based (CB)	Skill Enhancement (SEC)	Ability Enhancement (AECC)	Total Papers	Credits
	Theory	Practical	Total					
I	02	-	02	01	-	-	03	12
II	01	02	03	01	-	-	04	12
III	03	-	03	-	-	01	04	16
IV	02	01	03	01	-	-	04	14
V	02	01	03	01	-	-	04	14
VI	03	-	03	-	01	-	04	16
Total Papers	13	04	17	04	01	01	23	
Total Credits	13 * 4 = 52	4 * 2 = 08		4 * 4 = 16	4 * 1 = 04	4 * 1 = 04		84

B.A. / B.Sc. (H) Geography

Semester - I

Credits: 4 (CC)

Paper - I (GEB – 101-H)

Geomorphology

Unit - I:

The nature and scope of Geomorphology; Constitution of earth's interior; Geological Time Scale; Continental Drift, Plate Tectonics.

Unit - II:

Forces of earth crust and earth movements; Folds and Faults; Rocks: Formation and Types; Volcanoes and Earthquakes; Weathering: Normal cycle of Erosion by Davis & Penck.

Unit - III:

Evolution of Landscape: Fluvial, Glacial, Aeolian, Karst and Coastal.

Unit - IV:

Relevance of Geomorphological Studies in Environment Management, Settlement and Industries.

Books Recommended:

1. Dayal, P., 2015: Text-Book of Geomorphology, Shukla Book Depot, Patna.
2. Gabler R.E, Peterson. J.F., Trapasso, L.M. 2009. Essentials of Physical Geography Brooks/ Cole Cengage Learning.
3. Kale, V. and Gupta, A., 2004. Elements of Geomorphology. Oxford University press, Calcutta.
4. Strahaler, A.H., 2013 (6th edition). Introducing Physical Geography. Wiley Pub.
5. Thornbury, W.D., 1991. Principles of Geomorphology, Wiley Eastern Ltd., New Delhi
6. Worcester, P.C. 1969. Text Book of Geomorphology. East West Press, New Delhi.
7. Savindra Singh. Fundamental Concepts in Geomorphology. Prayag Pustak Bhavan, Allahabad.
8. Gautam, A. 2015. Geomorphology. Sharda Pustak Bhawan.
9. Hugget, R.J. 2011. Fundamentals of Geomorphology. Routledge Pub.
10. Harvey, 2012. A. Introducing Geomorphology: A Guide to Landforms and Processes. Dunedin Academic Press

B.A. / B.Sc. (H) Geography

Semester - I

Credits: 4 (CC)

Paper - II (GEB – 102- H)

Climatology

Unit - I:

Nature and scope of climatology, Composition and structure of the atmosphere; Insolation and its factor; heat Budget; Horizontal and vertical Distribution of temperature.

Unit - II

Atmospheric Evaporation; Humidity; Condensation, Precipitation, types of rainfall, Hydrological Cycle.

Unit - III

Atmospheric pressure and winds, Air Masses and Fronts; Cyclones and anti cyclones, Tropical and Temperate cyclones; Thunderstorms: Type and Distributions.

Unit - IV

Koppen's Classification of Climates, Global Warming; Air Pollution, Climatic Change and its impact on the earth.

Books Recommended:

1. Barry, R.G. and Chorley R.J. 2009(9th edition). Atmosphere Weather and climate, Routledge
2. Critchfield, J.H. 1983(4th edition). General Climatology. Phi Learning Pub.
3. Das, P.K. 2011(3rd edition). The Monsoons. National Book Trust, New Delhi
4. Fein, J.S. and Stephens, P.N. 1987. Monsoon. John Wiley and Sons, New York
5. India Met. Deptt: Climatological Tables of observation in India
6. Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan, Allahabad.
7. Lydolp.P.E. 1985. The Climate of the Earth. Roman & Allanheld Pub.
8. Menon,P.A. 1989. Our Weather, National Book Trust, New Delhi.
9. Thompson, R.D. and Perry, A. 1997. Applied Climatology: Principles and Practice. Routledge.
10. Siddharha, K. 2013. Oceanogaphy-A Brief Introduction, Kisalaya Pub., New Delhi.

B.A. / B.Sc. (H) Geography
Semester - I
Credits: 4 (CB)
Paper - III (GEB - 103- H)
Fundamentals of Remote Sensing

Unit - I:

Introduction to Remote Sensing; EMR and EMS; Stages of Remote Sensing; Remote Sensing & its Types; Interaction of EMR with Atmosphere and Earth Surface Features.

Unit - II

Remote Sensing Platforms and Sensors; Satellite Series: IRS, Spot, IKONOS and Quick Bird.

Unit - III

Digital images and their types; Image Resolutions: Spatial, Spectral, Radiometric and Temporal; Image Histograms; Image Rectification: Radiometric and Geometric.

Unit - IV

Aerial Photographs and their types; Geometry of Aerial Photographs; Scales of Aerial Photographs; Difference between Aerial Photographs and Maps; Difference between Aerial photographs and Imageries.

Books Recommended:

1. Lillisand,T., Keifer, Ralph W., Chipman, J. 2011. Remote Sensing and Image Interpretation. John Wiley Pub., New York.
2. Campbell, J.B. 1996(2nd edition). Introduction to Remote Sensing. Taylor and Francis, London.
3. Curran, P. 1985. Principles of Remote Sensing. Longman, London.
4. Sabins, J.F.F. 1997. Remote Sensing: Principles and Interpretation. W.H. Freeman & Co., New York.
5. Jenson, J.R. 2013. Remote Sensing and Environment. Pearson India
6. Kumar, S. 2005. Basics of Remote Sensing and GIS. Laxmi Pub.

B.A. / B.Sc. (H) Geography
Semester - II
Credits: 4 (CC)
Paper - IV (GEB - 201- H)
Oceanography and Hydrology

Unit - I:

Definition and Scope of oceanography; Surface configuration of Ocean floor; Sub-marine relief of Atlantic, Pacific and Indian Oceans; Horizontal and vertical Distribution of Temperature and Salinity.

Unit - II

Oceanic Circulation: Tides and Currents; Origin of Tides and their types; Equilibrium theory of tides and Tsunamis; Ocean Deposits, Coral Reefs and Atolls; Marine resources: Conservation and management.

Unit - III

Definition and Scope of Hydrology; Hydrological cycle; Surface water: sources and factors affecting quality and quantity; Precipitation: forms and estimation; Runoff: sources, and factors; Evaporation: factors and measurement; Transpiration: significance and factors; Evapo-transpiration.

Unit - IV

Ground water: Characteristics of stream flow; porosity and permeability, infiltration; Ground water: storage, aquifers, movement and discharge; water pollution: Implications and Management; Rain water Harvesting.

Books Recommended:

1. Andrew D. Ward and Stanley Trimble .2004(2nd edition). Environmental Hydrology, Lewis Publishers.
2. Basu S.K. 2004(ed). Handbook of Oceanography. Global Vision, Delhi.
3. Garg, S.K. 2005. Hydrology and Water Resource. Khanna Publishers, New Delhi.
4. Garrison Tom. 2012. Geography: An Invitation to Marine Science. Brooks/Cole. New York
5. Garrison Tom. 2008. Essentials of Oceanography. Brooks/Cole. New York
6. Savindra Singh. 2013. Oceanography. Prayag Pustak Bhawan, Allahabad.
7. Singh, V.P., 1992. Elementary Hydrology. Prentice Hall Inc., Upper Saddle River, N.J.

8. Timothy, Davie,(2003), Fundamentals of Hydrology. Routledge, Taylor and Francis Group, U.K.
9. Hussain, T and Tahir, M. 2012. Oceanography. Jawahar Pub., New Delhi
10. Siddhartha, K. . 2013. Oceanography: A Brief Introduction. Kosalaya Pub., New Delhi
11. Hussain, Majid. 2010. Fundamentals of Physical Geography. Rawat Pub.
12. Trujillo, Alan P and Thurman Harold V. 2013. Essentials of Oceanography. Pearson - Prentice Hall
13. Davis Richard A. (1972) Principles of Oceanography. Addition Wesley Publishing House.

B.A. / B.Sc. (H) Geography

Semester - II

Credits: 4 (CB)

Paper - V (GEB - 202- H)

Principles of Ecology

Unit - I:

Introduction Definition, Scope, Evolution and development; Difference between Ecology and Human Ecology; Environmentalism; Conservation Ethics.

Unit - II

Man and Environment Interaction; Human Adaptation and Modification; Environmental Adaptation Types, Aquatic, Desert and Land adaptations.

Unit - III

Nutrient cycles: Water Cycle. Nitrogen Cycle, Carbon Cycle, Phosphorous Cycle; Human Population Size and Growth; Carrying Capacity of Earth.

Unit - IV

Ecosystem: Definition, Components, Types and functions; Food Chain, Food Webs and Energy Trophic Levels; Energy flow within the Ecosystem: Y- Shaped Model.

Books Recommended:

1. Odum, E.P. 2004. Fundamentals of Ecology. Cengage Learning, New York.
2. Arumugam, N. 2014. Concepts of Ecology. Saras Publication, Delhi.
3. Pushpam Kumar, Reddy B. Sudhakar. 2007. Ecology and Human Well Being. Sage Publication.
4. Robert Ezra Park. 2003. Human Communities: The City and Human Ecology. Freeman Press.
5. Vladimir F. Krapivin., Costas A. Varotsos. 2005. Biogeochemical Cycles in Globalization and Sustainable Development. Springer.
6. Lovett G.M., Jones C., Turns M.G., Weather K.C. 2005. Ecosystem Function in Heterogenous Landscapes. Springer.
7. Yueh-Hsin Lo, Juan A. Blanco and Shovonlal Roy. Biodiversity in Ecosystem. InTech Publishers.
8. Herbert C. Hanson. 1962. Dictionary of Ecology. Philosophical Library Publisher .
9. Ehrlich, P.R, Ehrlich, A.H. and Holdren, J.P. 2000(Revised). Human Ecology. W.H. Freeman & Co. San Franchisco.

B.A. / B.Sc. (H) Geography

Semester - II

Credits: 2 (CC)

Practical - I (GEB - 203- H)

Map Interpretation

Unit - I: Map Introduction

Map: Definition, Significance and Classification; Geographic Coordinate Systems and Map Projections; Graphical Construction of Mercator's, Simple Conical with One Standard Parallel, Gnomonic and Stereographic Projections.

Unit - II: Map Interpretation

Types of Maps: General purpose vs Thematic Maps; Interpretation of Topo-sheets and Weather Maps.

Books Recommended:

1. Monkhouse. F. J. and Wilkinson. H. R. 1972. Maps and Diagrams. Methuen, London
2. Misra. R. P. 1969. Fundamentals of Cartography. Prasaranga. University of Mysore, Mysore
3. Arthur H. Robinson, Joel L. Morrison, Phillip C. Muehrcke , A. Jon Kimerling, Stephen C. Guptill. 1995(6th Edition). Elements of Cartography. Willey Pub.

B.A. / B.Sc. (H) Geography

Semester - II

Credits: 2 (CC)

Practical - II (GEB - 204- H)

Cartographic Techniques

Unit - I: Fundamentals to Cartography

Definition and Scope of Cartography; Elements of Map Making; Methods of Scale Representation; Drawing of Plain, Comparative and Diagonal Scales.

Unit - II: Cartographic Techniques

Diagram: Line, Bars, Circles; Techniques of Mapping: Dots and Choropleth.

Books Recommended:

1. Monkhouse. F. J. and Wilkinson. H. R. 1972: Maps and Diagrams. Methuen, London
2. Misra, R. P. 1969. Fundamentals of Cartography, Prasaranga. University of Mysore, Mysore
3. Kraak, M & Ormelling, F 2003, Cartography: Visualization of Spatial Data, 2nd edn, Pearson Education, Harlow, England.
4. Dent, BD 1999, Cartography- Thematic Map Design, 5th edn, William C Brown/McGraw-Hill.
5. Arthur H. Robinson, Joel L. Morrison, Phillip C. Muehrcke, A. Jon Kimerling, Stephen C. Guptill. 1995(6th Edition). Elements of Cartography. Willey Pub.

B.A. / B.Sc. (H) Geography

Semester - III

Credit: 4 (CC)

Paper - VI (GEB - 301- H)

Man and Environment

Unit - I: Man and Environment

Man-environment relationship and its social relevance; Elements of physical and cultural environment; Approaches: Environmental determinism, Possibilism and Modern Environmentalism.

Unit - II: Population and Human Settlements

World population growth; population distribution and its determinants; Type and patterns of human settlements: Urban and Rural; Trends and Patterns of World urbanization and Migration.

Unit - III: Human Adaptation to Environment

Man in eco-system; Ecological adaptation; Bio-Climatic regions of the World; Human adaptation in equatorial, monsoon, hot desert and tundra regions.

Unit - IV: Environmental Crisis and Management

Environment as a resource system; Technology and resources; environmental crisis-nature and management of deforestation, flood and droughts, Land degradation/ deforestation and their management.

Books Recommended:

1. Ahmad, Q.S. (1963): Major Natural Regions, S. Chand Publisher, Delhi.
2. Amit Harichandran, M.A. Chaudhry-2010: Global Vision Publication House, New Delhi-11002.
3. Kaushik, S.D. (1970): Manav Bhoogol, Rastogi & Co., Meerut.
4. Hoyt, J.B. (1973): Man and the Earth, Prentice Hall, New Jersey.
5. Husain, Majid (2010): Human Geography, Rawat Publication, Jaipur.
6. Husain, Majid (2010): Manav Bhoogol, Rawat Publication, Jaipur.

B.A. / B.Sc. (H) Geography

Semester - III

Credit: 4 (CC)

Paper - VII (GEB - 302- H)

World Regional Geography

Unit - I: Physical Landscape

Landforms and Drainage, Climate, Vegetation, Soil, World Natural Regions.

Unit - II: Economic Resources

Main Economic resources, Mineral resources, Iron, Energy; Major Economic Regions: Agriculture and Industrial.

Unit - III: Human Resources

Population Distribution, Density, Migration and Growth; Population Composition: Rural-Urban, Economic; Major Demographic Regions.

Unit - IV: Regional Study

Detailed study of any one region with emphasis on Physical, Economic and Population characteristics; Sub regionalization of the continent.

1. Asia
2. Europe
3. America

Books Recommended:

1. Blij, Harm J. De Peter, O. Miller: Geography: Regions and concepts John Wiley New York, 1993.
2. English, Paul Ward and James, A. Miller: World Regional Geography: A Question of Place, John Wiley, New York, 1989.
3. Jackson, Richard H. and Lioyd, E. Hudman: World Regional Geography: Issues for Today, John Wiley, New York, 1991.
4. Don, R. Hoy (ed.): Essentials of Geography and Development, MacMillan, New York, 1980.
5. Kromm, D.E.: word Regional geography, Saunders publishing, New York, 1981.
6. Mankoo, Darshan Singh: A Regional Geography of the world, Kalyani Publishers, Ludhiana.
7. Hussain, M. 2008, World Geography, Rawat Publications, Jaipur.

B.A. / B.Sc. (H) Geography

Semester - III

Credit: 4 (CC)

Paper - VIII (GEB - 303- H)

Disaster Management

Unit - I: Introduction

Disaster: Definition and significance; Difference between Hazard and Disaster; Disasters: Nature, Types and Magnitude; Earthquakes, Cyclones, Tsunamis, Floods, Droughts, Landslides, Wars and Industrial Disasters.

Unit - II: Risk and Preparedness

Concept of Risk and Vulnerability, Reduction of Risk, Techniques of Risk Assessment, People's Participation in Risk Assessment, National And Global cooperation in Risk Assessment; Disaster Preparedness; Concept and Nature; Community Based Planning, Role of Various Agencies and Government Organizations.

Unit - III: Planning and Management

Integral Development Planning for Disaster Management, Pre-Disaster Planning and management; Early Warning and Prediction System; Post-Disaster Management: Rescue, Relief, Rehabilitation; Public Awareness, Stress Management, Role of National and International Agencies in Disaster Management.

Unit - IV: National Perspective

Disaster Prone Areas of India; Seismic Zones, Areas prone to Floods and Droughts, Landslides and Avalanches, Areas prone to Cyclones and Coastal Hazards, Industrial Disaster Areas, National Disaster Policy of India.

Books Recommended:

1. Bryant Edwards (2005): Natural Hazards, Cambridge University Press, U.K.
2. Carter, W. Nick, 1991: Disaster Management, Asian Development Bank, Manila.
3. Central Water Commission, 1987, Flood Atlas of India, CWC, New Delhi.
4. Central Water Commission, 1989, Manual of Flood Forecasting, New Delhi.
5. Government of India, 1997, Vulnerability Atlas of India, New Delhi
6. Sahni, Pardeep et.al. (Eds.) 2002, Disaster Mitigation, Experiences and Reflections. Prentice Hall of India, New Delhi.

B.A. / B.Sc. (H) Geography
Semester - III
Credit: 4 (AECC)
Practical - III (GEB - 304- H)
Land Surveying and GPS

Unit - I:

Surveying: Definition, Principles, Methods, Classification; Plane and Geodetic Surveys; Triangulation: Principles, base line measurement, extension of the base.

Unit - II:

Plane Table Survey: Radiation, Intersection and Resection Methods; Dumpy Level Survey: Simple and Compound Levelling.

Unit - III:

Overview of Global Positioning System; GPS: Receivers, Satellite Constellations, Segments, Antennas, Signal Codes and Errors; Accuracy of GPS measurements; Application of GPS.

Unit - IV:

GPS Surveying and Mapping: Field Exercises using Hand Held GPS.

Books Recommended:

1. Aylmer Johnson. 2004. Plane and Geodetic Surveying. CRC Press.
2. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
3. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.

B.A. / B.Sc. (H) Geography
Semester - IV
Credit: 4 (CC)
Paper - IX (GEB - 401- H)
Economic and Resource Geography

Unit - I: Conceptual Framework

Scope of Economic and Resource Geography; Approaches to the classification of resources; Classification of economic activities; Resource culture and environment interface.

Unit - II: Resource Endowment and Primary Activities

Geographical factors, Production and distribution of crops: rice, wheat, tea, sugarcane; Fishing and forestry; Whittlesey's classification of agricultural systems; Von Thunen's model of agricultural location.

Unit - III: Energy Resources and Secondary Activities

Distribution and production of coal, petroleum and natural gas; Renewable energy resources; Factors of industrial location and industries: iron and steel, cotton textiles; Location principles: Weber's theory of industrial location.

Unit - IV: Conservation of Resources and Tertiary Activities

Conservation of resources; soil, water, forest and minerals; Changing forms of international trade; Free trade initiatives: the GATT system, Regional Trade Organizations, Non Tariff Barriers.

Suggested Books:

1. T. A. Hartshorn and J. W. Alexander: Economic Geography, Latest edition. Prentice Hall, PHI Learning New Delhi.
2. P. K. Roy: Economic Geography - A Study of Resources. Latest Edition, New Central Book Agency
3. W. P. Anderson: Economic Geography, Latest Edition. Routledge
4. R. Knowles and J. Wareing: Economic and Social Geography Made Simple, Latest Edition. Rupa Publications
5. B. J. L. Berry, E. C. Conklin and M. D. Ray: The Geography of Economic System, Latest edition. Prentice Hall
6. J. L. Guha and P.R. Chattarji: A New Approach to Economic Geography – A Study of Resources, Latest Edition. World Press, Kolkata

7. M.L. Jhingan: Economics of Development and Planning, Latest Edition. Vikash Publishing House, New Delhi
8. G. Alexandersson: Geography of Manufacturing, Latest Edition. Prentice Hall, New Delhi
9. D. W. Pearce and K. R. Turner: Economics of Natural Resources and the Environment. The John Hopkins University Press, Baltimore
10. M. G. Bradford and W. A. Kent: Human Geography: Theories and Applications, Latest Edition. Oxford University Press, Oxford.

B.A. / B.Sc. (H) Geography

Semester - IV

Credit: 4 (CC)

Paper - X (GEB - 402- H)

Geography of India

Unit - I

Geology and Structure; Physical Divisions of India; Drainage; Climate; Climatic Regions; Soil; Natural Vegetation, Agro-climatic Regions.

Unit - II

Population: Distribution its factors; Population Growth; Population Composition: Sex ratio, Rural and Urban breakup, Literacy, Work force, Language, Religion, Old-age population.

Unit - III

Agricultural: Food crops, Cash crops, Green Revolution, Agriculture through Five Year Plans; Agricultural Regionalization, Minerals: Production and Distribution of Metallic resources; Energy resources: Conventional and Non-Conventional; Industries: Mineral based and Agro-based; Industrial Regions, Industrial Policy, SEZ, Transport and Communication.

Unit - IV

India as a Geographical Unit; Concept of Region: Scheme of Regionalization: O.H.K. Spate and R.L. Singh, Concept of Watershed as a Planning Region.

Books Recommended:

1. Deshpande C.D: Indian-A Regional Interpretation, Northern Book centre, New Delhi.1992.
2. Chauhan.T., 1997: Geography of Rajasthan, Vigyan Prakashan Jodhpur.
3. Farmer. B.H. An Introduction to South Asia, Methuen, London, 1983.
4. Govt. of India-Reference Annual, 2001 Pub.div; New Delhi.
5. Govt. Of India: National Atlas of India Natmo Publication, Calcutta.
6. Hussain.M. 2009,Geography of India, Tata Mc Graw-Hill companies Book.
7. Kalpana Raja Ram, 2007, Geography of India, Spectrum Books, New Delhi 110058.
8. Govt.Of India: The Gazetteer of India. Vol. I & III Publication division.
9. Learmonth A.T.A et.al (ed) Man and land of South Asia, Concept
10. Mitra, A: levels of Regional development of India, Census of India, Vol.I, Part I-A (i) and (ii) New Delhi, 1967.
11. Routray, J.K.: Geography of Regional Disparity, Asian Institute of Technology, Bangkok, 1993.
12. Sdhekhar.S.(edt.)2004, Regional Planning in India, Anmol Publications, New Delhi-2
13. Shafi, M: Geography of South Asia, McMillan & Co; Calcutta, 2000.

14. Singh, R.L. (Ed). India: A Regional Geography, National Geographical Society, India.

B.A. / B.Sc. (H) Geography
Semester - IV
Credit: 4 (CB)
Paper - XI (GEB - 403- H)
Environmental Issues and Management

Unit - I: Conceptual Context

Environment: Definition and components; Environment as life- support system; Human and Environment Interaction; Environmental disorders: Human impact on land, climate, natural vegetation and non-renewable natural resources.

Unit - II: Environmental Issues

Population dynamics and food security and disaster; Global problems: Global warming, ozone depletion and acid rain; Climate change, desertification; Local and Regional Problems: Extreme hydrological events, deforestation, pollution of air and water; Depletion of fresh water resources and degradation of soils.

Unit - III: Management Strategies

Uncertainty in managing environmental problems: Uncertainty in risk assessment; Preservation and conservation; Integrated management, and community participation in management.

Unit - IV: Environmental Management

Management of air and water resources; Management of soil and forest resources; Management of biodiversity; Management of habitats; population management; Management of disaster, and adaptation to climate change.

Books Recommended:

1. Adams, W.M.1995: Green development: Environmental sustainability in the Third World, London: Rout ledge.
2. Alexander, D. 1993: Natural Disasters, New Delhi: Research Press.
3. Allaby, M. 1996: Basics of Environmental science, London: Routlede.
4. Baarrshes, W.H. 1996: Eco-fiction: Understanding the Environmental Debate, London: Routledge.
5. Brayant, E.A.1991: Natural Hazards, Cambridge: Cambridge University press.
6. Canter,L. W.!996: Environmental Impact Assessment, 2nd edition, New Yprk: McGraw hill.
7. Chapman,D. 1994: Natural Hazards, Melbourne: Oxford University Press.
8. Chapman J.L. and Reiss, M.J. 1993: Ecology: Principles and applications, Cambridge: Cambridge University Press.
9. Colls, J.1997: Air Pollution: An Introduction, London: Chapman and Hall.

B.A. / B.Sc. (H) Geography
Semester - IV
Credit: 2 (CC)
Practical - IV (GEB - 404- H)
Statistical Techniques in Geography

Unit - I: Introduction to Statistics

Population and Sample; Nature of Statistical data: discrete, Continuous, Measures of Data: Quantitative and Qualitative Data.

Unit - II: Frequency Distribution

Histogram, Frequency polygon, Ogive Curve, Normal and Skewed.

Unit - III: Measures of Central Tendency

Mean, Median, Mode; Measures of Dispersion: Mean deviation, Quartile Deviation, Standard Deviation; Coefficient of variation.

Unit - IV: Measures of Association

Spearman's Rank Correlation; Simple Linear Regression.

Books Recommended:

1. Alvi,Z; 1995: Statistical Geography, Rawat Publication, Jaipur.
2. Mahmood,A; 1986: Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
3. Goon, A.M; Gupta, M.K. & Dasgupta, B. 1992: Fundamentals of Statistics, Volume I, The World Press Pvt. Ltd; Kolkata.
4. Gregory, S.1985. Statistical Methods and the Geographers, Longman, London.
5. Peter A. Rogerson; 2006: statistical methods for Geography, Sage Publication, Asia Pacific Ltd. Singapore.
6. Johnson. R.A. Bhattacharyya. G.K. (2009): Statistics: Principles and Methods, John Wiley and Sons, USA.
7. Micheal C.J. (2005): Statistics: An Introduction. R. John Wiley and Sons, USA.
8. Norcliff, G.B., (1977): Inferential Statistics for Geographers: An Introduction, Hutchinson, London.
9. David. E. (1985): Statistics in Geography, Basil Blackwell Ltd, Oxford.
10. Johnston, R.J. (1978): Multivariate Statistical Analysis in Geography, Longman Group Limited, London.
11. Burt J.E. Barber. G.E. Rigby D.L. (2009): Elementary Statistics for Geographers, Guilford Press, New York.

B.A. / B.Sc. (H) Geography
Semester - V
Credit: 4 (CC)
Paper - XII (GEB - 501- H)
Regional Development and Planning

Unit - I: Region and Development

Region, Development and Planning: Definitions concepts and Types; Methods of delineation of regions: flow analysis, gravitational analysis and weighted analysis method.

Unit - II: Regional Development and Regional Planning

Regional devolvment: Concepts and indicators; Regional Planning: Concepts and purpose; Levels of planning: local, regional and national.

Unit - III: Development Theories and Models

Rostow's model; Core-periphery model; Christaller's central place theory and Growth pole theory.

Unit - IV: National and Regional Plans

Planning in India: Five year plans - goals and achievements; Regional imbalances and inequalities in India; Area Development plans: Tribal and Draught areas; Case Study of a Metropolitan City.

Books Recommended:

- 1) Regional planning: concepts, techniques, policies and case studies, (1992) R P Mishra
- 2) Regional planning in India, L. S. Bhat - 1972.
- 3) Introduction to Development and Regional Planning: With Special Reference to India, 2001, Jayasri Ray Chaudhuri.
- 4) Planning and regional development in India, Jagannath Mishra, Chakradhar Sinha - 1985.
- 5) India's development agenda: issues, challenges and policies, B. K. Prasad - 2005.
- 6) Regional Development and Planning in India selected Essays (2009) V. Nath, S.K. Aggarwal (Edited), Concept Publishing Company.
- 7) Regional Development and planning (1976) Paul A. Compton, Marton Pecs, Akademiai Kiado Publisher.
- 8) Regional planning in India (1983) Mahesh Chand and Vinay Kumar Puri.
- 9) Regional development: problems and policy measures, Abdul Aziz, Sudhir Krishna.
- 10) Decentralised planning and Panchayati Raj institutions, Sweta Mishra, Chaitali Pal-2000.
- 11) Urban and regional development in India, Baleshwar Thakur - 2005.
- 12) Regional development and planning in India, P. C. Tiwari - 1988.

B.A. / B.Sc. (H) Geography
Semester - V
Credit: 4 (CC)
Paper - XIII (GEB - 502- H)
Evolution of Geographical Thought

Unit - I:

Geography in classical age: Contributions of Greek and Roman scholars with special references to the works of Herodotus, Eratosthenes, Hecateus, Strabo and Ptolemy.

Unit - II:

Dark Age in Europe and its impact on the development of Geography; Contributions of Arab Scholars with special reference to the works of Al-Masudi, Al-Biruni, Ibn-e-Batuta and Ibn-e-Khaldun.

Unit - III:

The revival of scientific geography with special reference to the work of Varenus and Kant; Contributions of Humbolt and Ritter; Darwin's impact on geography.

Unit - IV:

Contributions of Ratzel, Vidal de la blache, Richthofen and HartShorne; The Quantitative Revolution in Geography; Post Quantitative Revolution trends: Welfare, Radical, Post Modernization.etc.)

Books Recommend:

1. Deckinsonre (1969) The Maker's of Modern Geography Routledge and Kegen Paul, London.
2. Hartshorne (1939) The Nature of Geography. Association of American Geographers Lancaster Pennsylvania.
3. Hartshorne (1959) Perspective on the Nature of Geography Rand McNally and company Chicago.
4. Harvey, D. (1989) The condition of Post Modernity: An Enquiry into the Origins of Cultural Change, Blackwell, Oxford.
5. Husain, M. (2002) Evolution of Geographic Thought (also in hindi) Rawat Publication's Jaipur.
6. Singh, J. (1988) Bhaugolik Chenta Ka Karam Vikas Gyanodaya, Gorakhpur.
7. Peet, R. (1998) Modern Geographical Thought Blackwell, Oxford.

B.A. / B.Sc. (H) Geography

Semester - V

Credit: 4 (CB)

Paper - XIV (GEB - 503- H)

Population and Development

Unit - I: Introduction to Population Geography

Subject matter and scope of Population geography, Demography and population Geography; Sources of Population Data: Census, Vital Statistics and National Sample Survey; Approaches in population Geography.

Unit - II: Population Distribution and Growth

Population Growth and change: Trends of Population Growth in the World; World Pattern of population distribution; factors affecting population distribution; Population Dynamics: Fertility, Mortality and Migration, Theories of Population growth: Malthusian theory, Theory of Demographic Transition.

Unit - III: Population Composition

Age and Sex Composition; Rural and Urban Composition; Economic Composition Literacy and Education; Religion/Caste/ Race etc.

Unit - IV: Population Problems and Policies-India

Declining Sex Ratio, Gender issues: Ageing, crime against Women, Human Trafficking, Child Abuse; HIV/AIDS; Population Policy of India.

Books Recommended:

1. Barret, H.R. (1995): Population Geography, Oliver and Boyd.
2. Bhende, A. and Kanitkar T. (2000): Principles of Population Studies, Himalaya Publishing House.
3. Bogue, Donald, J. (1969): Principles of Demography, John Wiley and Sons, New York.
4. Chandana, R.C. (1986): A Geography of Population: Concepts, Determination and Pattern, Kalyani publisher, New Delhi.
5. Chandana, R.C. (2008): Geography of Population: Concepts, Determinants and Patterns, 7th Edition, Kalyani Publishers, New Delhi.
6. Clarke, J.I. (1965): Population Geography, Pergamon press Ltd; Oxford.
7. Clarke, J.I. (1972): Population Geography, Second Edition, Pergamon Press Ltd; Oxford.
8. Clarke, J.I. (Ed.) (1984): Geography and Population: Approaches, Pergamon Press Ltd; Oxford.
9. Demco, G.J; Rose, H.M. Schnell, G.A. (1970): Population Geography, McGraw Hill Book Co; New York.

10. Jones, H.R. (1990): Population Geography, Sage.
11. Jones, H.R. (2000): Population Geography, 3rd Edition, Paul Chapman, London.
12. Peters, G.L. and Larkin R.P (1979): population Geography- Problems, Concepts and Prospects, Kendall Hunt Publication Co.
13. Swain, A.K.P.C. (2008): A Text Book of Population Studies, Kalyani Publishers, New Delhi.
14. Trewartha, G.T. (1969). A Geography of Population: World Patterns, John Wiley and Sons, New York.
15. Weeks John R. (2005): Population: An Introduction to Concepts and Issues. 9th Edition, Belmont, C.A.: Wadsworth Publication.
16. Wilson, M.G.A. (1968): Population Geography, Thomas Nelson, London.
17. Mahendra K. Premi (2001) Population of India, In the New Millennium: Census, National Book Trust, New Delhi.
18. Mahendra K. Premi, Dipendra Nath Das (2011) Population of India, B.R. Publishing Corporation, Delhi.

B.A. / B.Sc. (H) Geography
Semester - V
Credit: 2 (CC)
Practical - V (GEB - 504- H)
Photo and Image Interpretation

Unit - I: Basics of Remote Sensing

Electromagnetic radiation; Stages of remote sensing; Resolutions; Aerial photographs: types, border information and geometry; Difference between maps and aerial photographs; visual image interpretation: elements, instruments.

Unit - II: Photogrammetry

Numerical problems on aerial Photogrammetry; Types and determination of photo scale; Determination of height of objects using single vertical aerial photograph; Zeiss Test; Construction of instrument base, photo base and stereo-model.

Unit - III: Interpretation of Aerial Photographs

Detection of defined objects; Preparation of image interpretations keys; Interpretation of stereo-grams: fluvial and industrial; Interpretation of stereo-pairs.

Unit - IV: Interpretation of Satellite Imageries

Satellite Imageries: referencing, types, border information; Feature identification from multi-band imageries; Interpretation of FCC for land cover/ land use mapping: salt affected areas, ravenous lands, Chandigarh and Delhi.

Books Recommended:

1. Dickinson, G.C; 1979. Maps and Air Photographs, Arnold Heinemann, New Delhi.
2. Lillesand, T. and Keifer, 1979. Remote Sensing and Image Interpretation, John Wiley, New York.
3. NRSA, 1998. IRS- IA, Data User Handbook, National Remote Sensing Agency, Hyderabad.
4. NRSA, 1995. IRS-IC, Data User handbook, National Remote Sensing Agency, Hyderabad.
5. Patel, A.N. and Singh, S. 1992. Remote Sensing: Principles and Applications, Scientific Publishers, Jodhpur.

B.A. / B.Sc. (H) Geography

Semester - VI

Credit: 4 (CC)

Paper - XV (GEB - 601- H)

Urban Geography

Unit - I: Basic Concepts

Urban Geography: Definition, Nature and Scope; Evolution of Towns: Ancient, Medieval and Modern Period; Nature of Urbanization: Developed and developing countries.

Unit - II: City System

Morphology and Internal Structure of Cities: Concentric Zone Model, Sector Model, Multiple Nuclei Model; Hierarchy of Cities: Rank Size rule.

UNIT - III: Classification of Cities

Urban Function: Basic and Non Basic activities, Functional Classification of Towns: Harris, Nelson, Hierarchy of central Plans: Central Place Theory of Christaller and Losch; Growth Pole Theory of Perroux.

Unit - IV: Contemporary Issues

Contemporary Urban Issues: Urban Sprawl, Urban Poverty, Slums; Urban pollution: Air, water and Noise; Urban crimes.

Books Recommended:

1. Alam, S.M., 1964. Hyderabad-Secunderabad Twin Cities. Asia Publishing House. Bombay.
2. Berry, B.J.L. and Horton F.F; 1970 Geographic Perspectives on Urban Systems. Prentice Hall, Englewood Cliffs, New Jersey.
3. Carter, H; 1976. The Study of Urban Geography, Edward Arnold Publishers, London.
4. Hall, T; 2001. Urban Geography. Routledge, London.
5. Kundu, A; 1992. Urban Development and Urban Research in India. Khanna Publication.
6. Ramchandran. R; 1988. Urbanization and Urban System in India, New Delhi, Oxford Publication.
7. Singh R.B; (ed.) 2000. Urban sustainable in the context of Global Change, Oxford & IBN Pub. New Delhi.
8. Krishan, Gopal; 1974. Nagar Bhugol, Punjab State University Text Book board, Chandigarh.
9. Singh, B; 2008. Urban Geography, Rajesh Publication, New Delhi.

B.A. / B.Sc. (H) Geography

Semester - VI

Credit: 4 (CC)

Paper - XVI (GEB - 602- H)

Agriculture Geography

Unit - I:

Nature, scope and significance of agricultural geography; Origin and dispersion of agriculture; Determinants of agricultural development: physical, social, technological and institutional; World agricultural system.

Unit - II:

Cropping pattern and their measurements: crop combination, crop concentration, crop diversification. Measurements of Agricultural productivity and efficiency

Unit - III:

Agriculture during plan periods; Green Revolution and its effect on economy, society and environment; Agro climatic regions of India; Problems and prospects of Indian Agriculture.

Unit - IV:

Food aid and nutrition programmes; Food Security and its components; Sustainable agriculture; Watershed Management.

B.A. / B.Sc. (H) Geography
Semester - VI
Credit: 4 (CC)
Paper Code (GEB - 603- H)
PROJECT

B.A. / B.Sc. (H) Geography

Semester - VI

Credit: 4 (SEC)

Practical - VI (GEB - 604- H)

GIS

Unit - I:

User interface with GIS software: Arc View, and Arc GIS; Software and hardware interface and limitations; Scanning and Digitization; Data import and export.

Unit - II:

Data editing and cleaning; Projection and datum; Coordinate transformation; Geo-referencing; linking spatial and no-spatial data; Data base creation; Attribute handling.

Unit - III:

Spatial analysis: overlay, buffer and proximity; Creation of digital elevation models (DEM): contours and spot heights; Output generation and layouts.

Unit - IV:

Application of GIS in Urban Planning and Management, Suitability Analysis