

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. 2012-2013)

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

Semester-I

Paper	Title	Credits
GEB-101	Geomorphology	4
GEB-102	Climatology	4
GEB-103	Oceanography	4
GEB-104	Introduction to Cartography (Practical)	2

Semester-II

GEB-201	Principles of Ecology	4
GEB-202	Geography of Soil	4
GEB-203	Hydrology and Water Resource	4
GEB-204	Representation of Physical Data (Practical)	2

Semester-III

Paper	Title	Credits
GEB-301	Man and Environment	4
GEB-302	World Regional Geography	4
GEB-303	Regional Geography of India	4
GEB-304	Statistical Techniques in Geography (Practical)	2

Semester-IV

Paper	Title	Credits
GEB-401	Environmental Issues and management	4
GEB-402	Evolution of Geographical Thought	4
GEB-403	Fundamentals of RS/GIS/GPS (Theory)	4
GEB-404	Representation of Socio-Economic Data (Practical)	2
GEB-405	Land Surveying (Practical)	2

Semester-V

Paper	Title	Credits
GEB-501	Economic Geography	4
GEB-502	Geography of resources	4
GEB-503	Regional Development	4
GEB-504	Geography of Population	4
GEB-505	Image Interpretation (Practical)	2
GEB-506	Geography Information System (Practical)	2

Semester-VI

Paper		Credits
GEB-601	Geography of Rural Development	4
GEB-602	Urban Geography	4
GEB-603	Geography of tourism	4
GEB-604	Social and Cultural Geography	4
GEB-605	Disaster Management	4
GEB-606	Land Resource Management	4
GEB-607	Case Study (Project)	2
GEB-608	Socio-Economic Survey (Practical)	2

Note: Student has to select any four from 601,602,603,604,605, and 606

Paper (GEB-101)

Geomorphology

Credit: 4

Unit-I: Fundamentals/Basics of Geomorphology

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

Unit-II: Geomorphic Structure and Processes

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

Unit-III :Evolution of Landscape

Fluvial, Glacial, Aeolian, Karst and Coastal.

Unit-IV :Applied Geomorphology

relevance of Geomorphological studies in Environment Management, Settlement and Industries.

Books Recommended:

1. Dayal, P.,1990. Text-Book of Geomorphology, Shukla Book Depot, Patna.
2. Goble R.E, Peterson. J.F. Trapasso,L.M.(2009) Physical Geography Brooks/ Cole Cengage Learning.
3. Hussain, M., 1976. Arziyat ke Bunyadi Tasawwurat, (Urdu), Translation of Fundamentals of Geology, V. Obrochey, Taraqqi Urdu Board, New Delhi
4. Hussain, M., 2009. Fundamentals of Physical Geography, Raweat Publications, Jaipur.
5. Kale, V. and Gupta, A., 2004. Elements of Geomorphology, Oxford University press, Calcutta.
6. Singh, S. 1976, Bhu-Akriti Vigyan, Tara Publishers, Varanasi
7. Skinner. B.J. and Porter Stephen.C. 2000; John Wiley and Sons, Inc.
8. Strahaler, A.H., 2008:. Modern Physical Geography (4th Edition); Wiley-India
9. Thornbury, W.D., 1991. Principles of Geomorphology, Wiley Eastern Ltd., New Delhi
10. Worcester, P.C., 1969, Text Book of Geomorphology, East West Press, New Delhi.

Paper (GEB-102)

Climatology

Credit: 4

Unit-I: The Atmosphere

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 Moisture

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

Unit-III: Atmospheric Disturbances

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

Unit-IV: Regional and Applied Climatology

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 P.J 1982. Atmosphere Weather and climate, Fletcher & Son Ltd., Norwich.
2. Critchfield, J.H.: General Climatology
3. Das, P.K.: Monsoon
4. Fein, J.S. and Stephens, P.N.: Monsoon
5. India Met. Deptt: Climatological Tables of observation in India
6. Lal, D.S.: 2009, Climatology; Sharda Pustak Bhawan, Allahabad.
7. Lydolph, P.E.: The Climate of the Earth
8. Menon, P.A.: Our Weather
9. Robinson, P.J. and Henderson S.: Contemporary Climatology
10. Thompson, R.D. and Perry: Applied Climatology, Principles and Practice.

Paper (GEB-103)

Oceanography

Credit: 4

Unit-I: Ocean Floor

Nature and Scope of oceanography; Surface configuration of Ocean floor; Sub-marine relief of Atlantic, Pacific and Indian Oceans.

Unit-II: Physical Properties of Ocean

Horizontal and vertical Distribution of Temperature and Salinity; Ocean Deposits and Coral Reef.

Unit-III: Currents and tides

Ocean currents: Ocean currents of Atlantic, Pacific and Indian oceans; Origin of Tides and their types; Equilibrium theory of tides and Tsunamis.

Unit-IV: Applied Oceanography

Types of Marine resources; Marine resources and their usage; Pollution and its management.

Books Recommended:

1. Basu S.K.(2003) (ed): Handbook of Oceanography, Global Vision, delhi.
2. Davis Richard A. (1972): Oceanography, Addition Wesley Publishing Co.
3. Garrison Tom (1999): Oceanography, Brooks/Cole Wadsworth, Newyork.
4. Garrison Tom (2004): Essentials of Oceanography. Thompson, Australia
5. Grant Gross M. (1982): Oceanography, Prentice hall, Ince, New Jersey.
6. king Cuchlain A.M.(1962): Oceanography for Geographers (ED) Edward Arnold
7. Sharma & Vatal (1962): Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
8. Savindra Singh, 2009: Oceanography, Prayag Pustak Bhawan, Allahabad.
9. Thurman Harold V. (1985) Introductory Oceanography, Bell & Howell Co. London.
10. Weisberg J. and Howard P. (1974): Introductory Oceanography.McGraw Hill, Kogakusha,Tokyo.

Practical (GEB –104)

Introduction to Cartography

Credit: 2

UNIT-I: MAP INTRODUCTION

Map: Definition, Significance, Classification and Usefulness

UNIT-II: SCALES

Definition of scale; Methods of scale representation on a map; drawing of plane, comparative and diagonal scales; Calculation of radii of small circles on the globe, calculation of R.F. from arcs of meridians and parallels.

UNIT-III: ELEMENTS OF GLOBE

Globe V/s Map: Concept of small and great circle; Parallels of latitude and meridian of Longitude, graticule of parallels and meridians, locating points on the globe.

UNIT-IV: MAP PROJECTIONS

Definition, general Principles and Classification of map projection; Graphical Construction of Cylindrical Projections: Mercator's, and equal area; Conical projections; Polyconic, Bonnes, One standard two standard parallels. Zenithal: Gnomonic, Stereographic and Orthographic projections.

Books Recommended:

1. M.Ishteyaq, () Practical Geography
2. Mahmood .A. (2000) Statistical Methods in Geographical Studies, Rajesh Publications Ansari Road, New Delhi-2.
3. Sharma, J.P. 2010, Practical Geography, Rastogi Publication, Meerut.

Paper-(GEB-201)
Principles of Ecology

Credit: 4

Unit-I: Introduction

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

Unit-II: Human and Environment Interaction

Human Adaptation and Modification: Environmental Adaptation Types, Aquatic, Desert and Soil adaptations; Resources and Technologies.

Unit-III: Bio-Geochemical and Nutrient cycles

Nitrogen Cycle, Carbon Cycle, Phosphorous Cycle, Sulphur Cycle, Aresenic Cycle, Water Cycle, Human Population Size and Growth; carrying Capacity of Earth: Biophysical, Human.

Unit-IV: Ecosystem

Ecosystem: Kinds of Ecosystem, Types, physical, Chemical structure and functions; Genetic Energy flow within the Ecosystem, Y- Shaped Model of Energy Flow, Food-Chain and Tropic Levels and Ecological

Books Recommended:

1. Odum, E.P. (1971), Fundamental of Ecology, 3rd ed., Saunders, Philadelphia.
2. Southwick, C.H. (1976), Ecology and the Quality of Our Envirnoment, D Van Nostrand Company, New York.
3. Dieter Steiner and Marcus (eds.) (1993) Human Ecology; New York: Routledge,.
4. Donald J. Bogue. Human Ecology Vol.I,II,III
5. Ehrlich, P.R., A.H. Ehrlich and J.P. Holdren: Human Ecology, San Francisco: W.H Freeman & Co,;
6. George A. Theodorson (ed.) (1961) Studies in Human Ecology, New York: Harper & Row.

7. Quinn, J.A. (1971) *Human Ecology* (2nd edition), New York: Hamden Conn.
8. Boremann, F.H. and Likens, G.E. (1967), Nutrient cycling, *Science*,
9. Margulis, L., and Fester, R. (Eds.), 1991, *Symbiosis as Source of Evolutionary Innovation: Speciation and Morphogenesis*, Cambridge, Mass: MT Press.
10. Mills, D.H. (1972), *An Introduction to Fresh Water Ecology*, Liver and Boyd, Edinburgh
11. Patten, B.C. (1974), The zero state and ecosystem stability, Proc. 1st. Internat. Cong. Ecol., The Hague, Netherlands.
12. Svensson, B.H. and Soderlund, R. (Eds.) (1976), Nitrogen, phosphorus and sulphur global cycles, *Ecol. Bull.* (Stockholm).
13. Krebs, C.J. (1972), *Ecology*, Harper and Row, New York.
14. Odum, E.P. (1968), The strategy of ecosystem development, *Science*, 164, pp. 262-270.
15. Tansley, A.G. (1935), The use and abuse of vegetational concept and terms, *Ecology*.

Paper-(GEB-202)

Geography of Soil

Credit: 4

Unit-I: Basic Concepts and Processes

Soil: Nature, Scope and significance; Soil Geography and Pedology; Process of Soil formation and its Factors; Soil Profile and development: Soil catena, Pedologic Regimes, Podolization, Laterization, Calcification and gleezation.

Unit-II: Soil Organisms and Soil Properties

Macro and micro organisms (Like earthworms, snow bugs, mites, cetipedes, rodents, insects, nematodes, Protozoa rotifers, algae and fungi, bacteria and actinomyces); Physical and Chemical properties of the soil.

Unit-III: Soil Classification and Evaluation

Genetic and Taxonomic classifications; Seventh approximation; Evaluation of land and Soil (Parametric and non-parametric; soil surveys and modern techniques: Remote Sensing and GPS).

Unit IV: Soil Reclamation and Management

Soil erosion and conservation; Reclamation of soils; Integrated soil and water management; Sustainable development of soil resources with reference to India.

Books Recommended

1. Backman, H.O., and N.C.Brady, 1960.The Nature and Properties of Soils, Mc Millan, NY.
2. Bunting,B.T; 1973. The Geography of Soils,Hutchinson,London.
3. Foth,H.D; and L.M,Turk,1972.Fundamentals of soil Science,John Wiley,NY.
4. Govinda, R.S.V. and H.G.Gopala Rao, 1978.Studies on Soils of India, Vikas, New Delhi.
5. Mc Bride,M.B; 1999. Environmental Chemistry of Soils, Oxford University Press,NY.
6. Raychoudhuri, S.P; 1958. Soils of India ICAR, New Delhi.

Paper (GEB – 203)

HYDROLOGY & WATER RESOURCES

Credit: 4

Unit-I: Introduction

Definition and Scope of Hydrology, Hydrological cycle, Structure and properties of water, Earth's water resources and water as a cyclic resource.

Unit-II: Surface water

Surface water: sources and factors affecting quality and quantity; Precipitation: forms and estimation; Runoff: sources, and factors affecting runoff; Evaporation: factors and measurement; Transpiration: significance and factors; Evapotranspiration.

Unit-III: Ground Water

Ground water: Characteristics of stream flow, porosity and permeability, infiltration, Ground water: storage, aquifers, movement and discharge.

Unit-IV: Water Management

Interface between surface and Ground Water; Environmental influences on water resources; urban water supply; water management; water harvesting; water pollution and measures to control.

Books Recommended:

1. Sing, V.P., (1992), *Elementary Hydrology*, Prentice Hall Inc., Upper Saddle River, N.J.
2. Ward A.D. and Elliot, W.J., (1995), *Environmental Hydrology*, Lewis Publishers, New York.
3. Maidment, D.R. (Ed.), (1993), *Handbook of Hydrology*, McGraw, New York.
4. Reddy, P.J., (1986), *A Text Book of Hydrology*, Lakshmi Publications, New Delhi.
5. Herschy, R.W. and Fiarbridge, R.W., (Eds.), (1998), *Encyclopaedia of Hydrology and Water Resource*, Kluwer Academic Publishers, Boston, M.A.

6. Prescott, J.A., (1940), Evaporation from a Water Surface in Relation to Solar Radiation, *Trans, Royal Society of Australia*,
7. Freeze, R.A. (1972), Role of Subsurface Flow in Generating Surface Runoff, *Water Resource*, Vol. 8, No. 5.
8. Viessman, W.G. and Lewis, G.L., (1996) *Introduction to Hydrology*, Harper Collin, New York.
9. Walesh, S.G., (1989) *Urban Surface Water Management*, Jhon Wiley and Sons, New York.
10. Garg, S.K., (2000), *Hydrology and Water Resource*, Khanna Publishers, New Delhi.
11. Bear, J., (1979), *Hydraulics of Ground Water*, McGraw Hill, New York.
12. Bouwer, H., (1978), *Ground Water Hydrology*, McGraw Hill, New York
13. Chow, V.T. (Ed.), *Handbook of Applied Hydrology*, McGraw Hill, New York
14. Waltan, W.C., *Ground Water Resource Evaluation*, McGraw Hill, Tokyo.
15. Dingman, S.L., *Physical Hydrology*, 2nd ed., Prentice Hall, Upper Saddle River, N.J.
16. Timothy, Davie,(2003), *Fundamentals of Hydrology*. Rowledge, Taylor and Francis Group, U.K.
17. Rao, K.L., (1982), *India's water wealth*. Orient Longman, Delhi.
18. Todd, D.K., (2004), *Groundwater Hydrology*, John Wiley & Sons Inc
19. Mahajan, G., (1989), *Evaluation and Development of Groundwater*. Ashish Publishing House, New Delhi.
20. Karanth, K.R.C., (1988), *Ground Water: Exploration, Assessment and Development*. Tata-Mcgraw Hill, New Delhi.
21. Andrew D. Ward and Stanley Trimble, (2004), 2nd Ed., *Environmental Hydrology*, Lewis Publishers.
22. Aggarwal, A., (1991), *Floods, Floodplains and Environmental Myths*. Centre for Science and Environment, New Delhi.

23. Wright. R.T and Nebel. B.J., (2002), *Environmental Science: toward a sustainable future*, Prentice Hall India Ltd, 8th Edition.
24. Vijay P. Singh, (1995), *Environmental Hydrology*. Kluwer Academic Publications, The Netherlands.
25. Subramaniam V., (2002), *Text Book of Environmental Science*, Narosa Publishing House, Delhi.

Practical-(GEB-204)

Representation of Physical Data

Credit: 2

Unit-I: Representation of Relief-I

- a) Methods of depicting relief feature:-contour; Hachures, hill shading and layer tinting.
- b) Drawing of Profiles: Composite, serial and Projected

Unit-II: Representation of Relief-II

- a): Representation of waterfall, spur, saddle, escarpment, valley with their contours.
- b): Determination of slope, Gradient
- c): Interpretation of topographical maps and Geological Maps.

Unit-III: Representation of Climatic Data

- a): Representation of climatic data through Bar graph, linegraphs,
- b): Representation of climatic data through isotherms, isobars, & Isohytes.
- c): drawing of climographs, Hythergraphs and wind roses.

Unit-IV: Study of Weather Charts/Maps

- a): Study of weather symbols given on a weather map of India.
- b): Interpretation of a weather chart of India.
- c): Pertaining to different season.

Books Recommended:

1. Dickinson.G.C. 1968: Statistical Mapping and Presentation of Statistics. Arnold, London
2. Lawrence. G.R.P,1971 : Cartographic Methods, Methuen , London
3. Monkhouse. F.J and Wilkinson.H.R.1972: Maps and Diagrams. Methuen , London
4. Misra. R.P.1969: Fundamentals of Cartography, Prasaranga. University of Mysore, Mysore.
5. Raisz.E. 1962: Principles of Cartography, McGraw Hill, New York.
6. Robinson.A.H.1978: Elements of Cartography, John Wiley, New York.

Paper-(GEB-301)

Man and Environment

Credit: 4

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; Biom-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 Pub.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.

Paper-(GEB-302)

World Regional Geography

Credit: 4

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 of 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 Lloyd, 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.: World 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.

Paper-(GEB-303)

Regional Geography of India

Credit: 4

Unit-I: Physical and Human Landscape

Physiography, Climate, Drainage, Vegetation, Soil, Population and Regionalisation schemes.

Unit-II: Upper Ganga Plain/Rajasthan Desert

Physiography, Climate, Drainage, Vegetation, Agriculture, Industries, population.

Unit-III: Chotanagpur Plateau/ Deccan Plateau

Physiography, Climate, Drainage, Vegetation, Agriculture, Industries, population.

Unit-IV: Regionalization

Regionalization and major regions of India Based on Factors of regionalization.

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. Sdhekhhar.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.

Practical-(GEB-304)

Statistical techniques in Geography

Credit: 2

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.

Paper-(GEB-401)

Environmental Issues and management

Credit: 4

Unit-I: Conceptual Context

Environment: Definition, components and interconnectedness of its components; Environment as life- support system, resource field and throughput sink; Human and Environment Interaction: Imprint of technological development, trade and scientific progress on environment; Environmental disorders: Human Impact on land, climate, natural vegetation and impacts of utilization of non-renewable natural resources.

Unit-II: Environmental Issues

Global problems: Global warming, ozone depletion and acid rain (acid deposition); climate change, desertification, population dynamics and food security and disaster; Local and Regional Problems: Extreme hydrological events, deforestation, pollution of air and water; Depletion of fresh water resources and degradation of soils; waste management.

Unit-III: Management Strategies

Uncertainty in managing environmental problems: Uncertainty in risk assessment (magnitude, when and where); Preservation or conservation; Incremental management or all out managing; Problem scale in management; component or 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(human as well as animals); population management; Management of disaster, and adaptation to global 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: Routledge.
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.1996: 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

Paper-(GEB-402)

Evolution of Geographical thought

Credit: 4

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. Deckinson (1969) The Making of Modern Geography Routledge and Kegan 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. Sing, J. (1988) Bhaugolik Chenta ka karam vikas Gyanodaya Gorakhpur.
7. Peet, R. (1998) Modern Geographical Thought Blackwell, Oxford.

Paper-(GEB-403)

Fundamentals of Remote Sensing/GIS/GPS

Credit: 4

Unit –I: Basics of Remote Sensing

Energy sources and radiation principles; Energy interaction in atmosphere and with earth surface features; Remote sensing Platforms and sensors.

Unit-II: Basics of Photogrammetry and Image Interpretation

Basic geometric characteristics of aerial photographs; Classification of Aerial Photographs, Ground coverage of aerial photographs; Elements of image interpretation.

Unit-III: Concepts of Geographic Information Systems

Scope and components of GIS; Data models-raster and vector; Spatial Analysis-Overlay, proximity and Buffer; 3-D GIS, GIS Application in Geo-Studies.

Unit-IV: Global Positioning System

Basic concepts and segments of GPS; Positioning; Sources of Errors in GPS observation; GPS applications.

Books Recommended:

1. Lillisand, T.M. and M.K. Ralph (2011) Remote Sensing and Image Interpretation, New York, John Wiley & Sons,Inc.
2. Campbell,J.B.(1996) Introduction to Remote Sensing, London, Tylor and Francis, Second Edition.
3. Curran P. (1985) principles of Remote Sensing, London, Longman.
4. Sabins, J.F.F.9 (1997) Remote Sensing: Principles and Interpretation, New York, San Francisco, W.H. Freeman and Co.
5. Jenson, JR (2011) Remote Sensing of Environment, New Delhi,McGraw Hill.

Practical-(GEB-404)

Representation of Socio-Economic Data

Credit: 2

UNIT I: ELEMENTARY STATISTICAL METHODS

Measures of Central Tendency: mean, median and mode; Measures of dispersion; quartile deviation and standard deviation.

UNIT II: MEASURES OF RELATIONSHIP

Measure of Association: Karl Pearson's and Rank correlation method, Product-moment correlate co-efficient; Measure of functional relationship: Simple regression.

UNIT III: REPRESENTATION OF POPULATION AND SOCIAL DATA

Population distribution: Rural (dots) Urban (spheres); population growth (line graph); Age and sex pyramid; literacy (Choropleth- Standard deviation method); Distribution of tribal population (polybar diagram).

UNIT IV: REPRESENTATION OF ECONOMIC AND TRANSPORT DATA

Land utilization (proportional divided circles); Distribution of crops (simple bar, compound bar and polybar diagram) and Distribution of major industries (geometric symbols)

Books Recommended:

1. Alvi, Z., 1995. Statistical Geography, Rawat publishers, Jaipur.
2. Mahmood, A., 1986. Statistical Methods in Geographical Studies, Rajesh Pub., New Delhi.
3. Monkhouse, F. J. and Wilkinson, H. R., 1963. Maps and Diagrams, Methuen, London.
4. Singh, R. L. and Dutt, P. K., 1970. Elements of Practical Geography, Students' Friends, Allahabad.
5. Singh, R. L. and Singh, R., 1973. Manchitra avam Prayogatmak Bhoogol, Central Book Depot, Allahabad.

Practical-(GEB-405)

Surveying

Credit: 2

Unit-I Basic Concepts and Principles

Surveying: Definition, classification, objectives, principles; Plane and geodetic surveys; Triangulation: Principles, baseline measurement, extension of base.

Unit-II Levelling

Definition, types, instruments; Levelling by Dumpy level (rise and fall method), use of Indian Pattern Clinometers.

Unit-III Plane Table Survey

Radiation, Intersection; Resection: Two point Problem, Three point problem (mechanical method, Trial and error method, graphical method-Bessel's method); Use of telescopic alidade.

Unit- IV GPS Surveying

Introduction to GPS Surveying, Measurement of

Books Recommended:

1. Aggarwal, N.K., 2006. Essentials of GPS, Book Selection Centre, Hyderabad.
2. Ganesh, A. and R.Narayankumar, 2006. GPS Principles and applications, Satish Serial Publishing House, Delhi.
3. Clark, D. (revised by J.E. Jacson), 1983. Plane and geodetic Surveying for engineers, CBS Publishers and Distributors, Delhi.
4. Clending, J. and G.J. Oliver, 1979. Principles and use of Surveying Instruments, Van Nostrand Reivhold Co.Ltd., Berkshire, England.
5. fazal, S. and Atiqur Rahman, 2007. A Geographical Information System (GIS) Terminology, New Age International publishers, Delhi.
6. Pugh, C.J., 1975. Surveying for field Scientist, Methuen and Co, Ltd. London.
7. Karnetkar, T.p. and S.V. Kulkarni, 1985. Surveying and levelling (part-II), Poona Vidyarthi Griha Prakashan, Poona.
8. Kocher, C.L., 1980. Surveying –II, Kalson Pub. House, Ludhyyana/Delhi.
9. Siddiqui, M.A., 2011. Concepts and Techniques of Geoinformatics, Sharda Pustak Bhawan, Allahabad.
10. Punmia, B.C; 1985. Surveying (Vol.I), Edition IX, Student Book House, Delhi.
11. Shahani, P.B; 1985. Text Book of Surveying (Vol.I), Oxford and IBH publishing Co; New Delhi.
12. Sharma, J.L., 1985. A text Book of Surveying, CBS Publishers and Distribution, Delhi.

Paper-(GEB-501)

Economic Geography

Credit: 4

Unit-I: Introduction

Subject matter and Scope of Economic geography; Classification of Economic activities; Economic Resources: Concept and classification of Economic Resources

Unit-II: Primary Activities

Major Primary activities: Classification and distribution of major crops; Rice, Wheat and Tea; Land use and Agricultural location models: L.D stamp and J.H. Von Thunen.

Unit-III: Secondary Activities

Distribution and Production of Iron ore, coal, petroleum; Factors of Industrial location; Distribution and potential growth of Iron and Steel industry, Cotton Textiles Industry; Weber's theory of industrial location.

Unit-IV: Tertiary Activities

Trade: Determinants and strategies; International trade with references to GATT and WTO; Transport: Concept Of distance, accessibility and connectivity.

Books Recommended:

1. Alexandersson, C, 1971: Geography of Manufacturing, prentice Hall India, New Delhi.
2. Berry, B.J.L; Conklin, E.C. and Ray, M.D. 1976: The geography of Economic System, Prentice Hall, New Jersey.
3. Bradford, M.G. and Kent, W.A.1977: Human Geography, Theories and Application, Oxford University press, Oxford.
4. Brock, J.O.M. and webb, J.W. 1973: A Geography of Mankind, McGraw Hill, New York.
5. Gourtney, P. 1965: Plantation Agriculture, G.Bell and Sons,London.
6. Dhillon, J.S. Agricultural Geography
7. Guha,J.L. and Chattarj,P.R. 1989: A New Approach to Economic Gography:A Study of resources, world Press, kolkata.
8. Hartshorn,T.A. and Alexander,J.W. 1988: Economic Geography, Prentice Hall India,New Delhi.
9. Jhingan, M.L.1978: Economics of Development and Planning, Vikas Publishing house, New Delhi.
10. Jones,C.F.and Darkenwald, G.G.1954,Economic Geograpy, Macmillan, New York.
11. Leong. G.C. and Morgan, G.C.1975: Human and Economic Geography, Oxford University Press, Hong Kong.

Paper-(GEB-502)

Geography of Resources

Credit: 4

Unit-I: Introduction

Definition of Resources: Context of Becoming resource; Nature of resources: Exhaustibility, degradability, renew ability and substitutability; Resources and market, technology and culture; Significance of Resources: Backbone of Economic growth and development; Pressure on resources.

Unit-II: Classification of Resources

Different approaches to the classification of resources; Exhaustible and inexhaustible, capital and stock, renewable and non-renewable, biotic and abiotic; and Types of resources by their uses.

Unit-III: Geographical Patterns of Resource Endowment

Geographical distribution of major food crops, livestock and fishery resources; Distributional patterns of biodiversity, forests, energy, land, freshwater and mineral resources; and world resource regions.

Unit-IV: Conservation and Management of Resources

Philosophy and Approaches to Conservation of Resources; Conservation of Major Resources: Soil, water, forest and minerals; Importance of biodiversity and its conservation; Resource appraisal and policy making; Management methods of resources; Resource Development and Sustainable resource management.

Books Recommended:

1. Roger Perman, Yue Ma and James Mc Gilvray (1997) Natural Resources and Environmental Economics, II Edition, Addison weley Longman Ltd, Singapore.
2. John Bowers (1997), Sustainability and Environmental Economics, Addison Weley Longman Ltd, Singapore.
3. David W. Pearce and Kerry R. Turner (1999). Economics of Natural Resources and the Environment, The Johns Hopkins University press, Baltimore.
4. Adams, W.M. (1990). Green Development: Environment and Sustainability in the Third world, Routledge and Chapman Hall, New York.
5. Burton, I. and Kates, R.W.(1978): Readings in Resources Management and Conservation, McGraw Hill, New York.
6. clark, G.L; Feldman, M.P. and Gertler, M.S.(eds.) (2000): The Oxford handbook of Economic Geography, Oxford University Press, Oxford and New York.

Paper-(GEB-503)

Regional development

Credit: 4

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 devolvement: 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

Paper-(GEB-504)

Geography of population

Credit: 4

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 Georaphy-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.

Practical-(GEB-505)

Photo and Image Interpretation

Credit: 2

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 photoscale; Determination of height of objects using single vertical aerial photograph; Zeiss test; Construction of instrument base, photo base and stereomodel.

Unit-III: Interpretation of Aerial Photographs

Detection of defined objects; Preparation of image interpretations keys; Interpretation of stereograms: fluvial and industrial; Interpretation of stereopairs.

Unit-IV: Interpretation of Satellite Imageries

Satellite Imageries: referencing, types, border information; Feature identification from multi-band imageries; Interpretation of Fcc for land cover/ landuse 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 Feifer, 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, Hyyderabad.
5. Patel, A.N. and Singh, S. 1992. Remote Sensing: Principles and Applications, Scientific Publishers, Jodhpur.

Practical-(GEB-506)

Geographical Information System

Credit: 2

Unit –I: Introduction

Fundamentals of Computers; Components of GIS: Hardware, Software, Web GIS and Interactive GIS.

Unit-II: Data Management

Sources of Data; Spatial Models: Raster and Vector, Altitude data; DBMS; Data entry: Spatial, a spatial.

Unit-III: Geo Spatial Analysis

Spatial Analysis: Overlay, Buffer, Proximity and Network analysis.

Unit-IV: Geo-Visualisation

Map Designing: Principles; lettering and symbolization; Classification of data.

Books Recommended.

1. Lo, C.P. and Yeung AKW. (2004), Concepts and Techniques of GIS, Prentice- Hall of India, New Delhi.
2. Masood, A.S.(2001), Concepts and techniques of Geoinformatics, Sharda pustak Bhawan, Allahabad.
3. Fazal S and Rahman A. (2007), GIS Terminology, New Age International Publishing's, New Delhi.

Paper-(GEB-601)

Geography of Rural Development

Credit: 4

Unit-I: Concept and Approaches

Rural Development: elements, objectives, scope and significance, approaches to rural development: community development approach, sectoral like approach, target approach, integrated approach, and participatory development approach.

Unit-II: Rural Economics and Rural Development

Rural Economics: concept and scope; Determinants of rural development; Stages in rural economic development Rural Industrialization: Village and small scale industries.

Unit-III: Rural Facilities & Services in India.

Types of community facilities and services: water, sanitation, electricity; Rural education and health; Role of governmental, non-governmental organizations.

Unit-IV: Rural Development Planning & Programmes

Regional Planning: District block level and area Planning; Development Programme and role of Panchayati Raj Institution; Sectoral: land, water and forests.

Books Recommended:

1. Sahu, B.K.2003. Rural Development in India; Anmol Publishers, Delhi.
2. Jha, UM.1995 Rural Development in India: Problems and prospects.
3. Mathew, T.1981. Rural development in India: papers presented at National Conference.
4. Madan, G.R.2010. Indian rural Problems, Radha publication, New Delhi.
5. Garg, A.1992. Working and Impact of Integrated rural development; Deep and Deep publishers, New Delhi.
6. Das, K.D.2007. Dynamics of Rural Development; Deep & Deep Publishers, New Delhi.
7. Sinha,S.P. & Singh, S.2007. Strategies for Sustainable Rural Development; Deep & Deep Publishers, New Delhi.
8. Armendera, !998. Poverty Rural Development and public Policy; Deep & Deep Publishers, New Delhi.
9. Sinha, R.N.P; Geography and Rural development; Manohar Publishers and distributors, New Delhi.
10. Satendra and Sharma, V.K.2004. Sustainable Rural Development for disaster Mitigation,Concept, New Delhi.
11. Nath, V.2010. Rural Development and Planning in India,Concept,New Delhi.
12. Nikkiran, S. and Ramesh, G. 2010. Research Methods in Rural Development, Deep and Deep Publications, New Delhi.

Paper-(GEB-602)

Urban Geography

Credit: 4

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: Nagar Bhugol, Punjab State University Text Book board, Chandigarh, 1974.
9. Singh, B; 2008. Urban Geography, Rajesh Publication, New delhi.

Paper-(GEB-603)

Geography of Tourism

Credit: 4

Unit-I: Fundamentals of Tourism

- a) Concepts, Nature and Scope, factors responsible for growth of tourism
- b) Historical developments of tourism
- c) Types and forms of tourism

Unit-II: Historical and Cultural Heritage Tourism

- a) Historical Heritage: Art, Architecture, Monuments
- b) Cultural Heritage: Fair, Festival, Dance, Music
- c) Conservation of Historical and Cultural Heritage: Museum, Archives

Unit-III: Constituents of Tourism

- a) Important modes of travel: Road, Rail, Air and Waterways
- b) Guides: Their Duties and Responsibilities
- c) Travel Agents and Tour Operations: Providing information and making arrangements

Unit-IV: Impact of Tourism and its Management

- a) Impact on economy, society and culture
- b) Impact on environment and ecology
- c) Tourism management

Books Recommended:

1. A.K. Bhati Tourism Development : Peripherals and Practices, Sterlin Publication New Delhi.
 2. Arthur Jon Burkart S. Medlik Tourism : Past, Present and Future, Willian Henemann, London, 1974
 3. Jafar Jafri (Chief Editor) Encyclopedia of Tourism, Pub. Routledge, London,2000.
 4. L.K. Singh Ecology, Environment and Tourism, Isha Books, Delhi, 2008.
 5. Mcintosh, R.W Tourism : Principles and Practices, Philosophies, Pub. John Weley and Sons : 5th Ed. 1986
 6. P.C. Sinha Tourism Management Vols. 4, Anmol Publications, New Delhi – 2007
-
6. Louse Stig Sorensen and Heritage Studies : Methods and Approaches
Joha Carnon

Paper-(GEB-604)

Social & Cultural Geography

Credit: 4

Unit-I: Fundamentals of Social Geography

Definition and scope, world distribution of social groups and their characteristics; social issues of developed and developing countries of the world.

Unit-II: Indian Social structure

Characteristics of Indian society; Issues of Rural population; Process of Social change.

Unit-III: Fundamentals of cultural Geography

Definition and scope of cultural geography; World cultural regions and their characteristics; cultural diffusion and cultural change.

UNIT-IV: Characteristics of Indian Culture

Cultural diversities; distribution of SC and ST ; linguistic regions, Religious composition.

Books Recommended:

1. Ahmad, A. (1999) social geography, Rawat, Jaipur.
2. Carter .Z and Jones.T (1989) Edward Arnold.
3. Crang.M. (1998) Cultural Geography, Rutledge, London.
4. Mohanthy. S. (2000), Social and Cultural Geography, Wiley Black Well.
5. Richard.J.(1990) Cultural Geography, People, Places and Environment, West Publishing.
6. Srinivas. M.N. (1991), India: Social Structure, Hindustan Publishing corporation,Delhi.
7. Vincent J.D, 2000. Social Geography, Wiley Black Well.

Paper-(GEB-605)

Disaster Management Credit: 4

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.

Paper-(GEB-606)

Land Resource management

Credit: 4

Unit-I: Conceptual Framework

Production and Environmental Functions of Land: Land as productive, finite and renewable resource; Economics of Land: Competitive and conflicting uses; The context for Land Management: Vulnerability to degradation and pollution; Sustainable Land Management: The need for, and definition of sustainable land management.

Unit-II: Degradation of Land Resources

Problematic Land and Land Degradation: salinity, alkalinity and acidity of soils; Desertification, deforestation, overgrazing, soil erosion and leaching and water-logging;(Chemical use and soil infertility (nutritive and biological); Soil erosion: Water and air erosion; Processes of soil erosion; Universal Equation of Soil Erosion: Gully erosion: Processes of gully erosion; Desertification: Processes of local/ desertification and expansion of deserts; Deforestation and overgrazing.

Unit-III: Management of Problematic Land Resources

Soil treatment using cost effective amelioration technologies; Appropriate cropping practices in problematic soils; Development of subsurface drainage to reclaim waterlogged land; Restoration of ecologically sensitive land cover; Wise land use: Planning, market instrument and legal enactments to reduce malpractices and misuse of land.

Unit-IV: Management of Degradation of Land resources

Prioritisation of land resources on the basis of level of degradation; Agro ecological/ agro climatic zoning; Management of soil and gully erosion, and reclamation of badlands; Mitigation of local/desertification and minimisation of expansion of desert using ecological technology; Reforestation and restoration of pasture/ grazing lands.

Books Recommended:

1. Chisholm, M. (1969). *Rural Settlements and Land Use*; London: Hutchinson.
2. Anthony, J.(2004). "Do state growth management regulations reduce sprawl?" *Urban Affairs* 39(3): 376-397.
3. Chinitz, B.(1990). " Growth Management Good for the Town, Bad for the Nation", *Journal of the American Planning Association* 56(1): 3-8.
4. Daniels, T.L. (2000), "Integrated Working Landscape Protection: The Case of Lancaster County". *Society and Natural Resources* 13: 261-271.
5. Fischel, W. (2004). "An economic history of zoning and a cure for its exclusionary effects"; *Urban studies* 41(2): 317-340.
6. Schwab, G.O.; frevert, R.K.; Edminister, T.W. and Barnes, K.K. (1981). *Soil and water conversation engineering*, John Wiley & Sons, Inc.

Paper-(GEB-607)

Case Study (Project)

Credit: 2

Each student will be allotted a project from the optional papers offered in VI semester.

Practical-(GEB-608)

Socio Economic Survey

Credit: 2

UNIT I:

Study and interpretation of topographical sheets of selected regions on different scales.

UNIT II:

Collect the social and economic data of its village/ town from various sources.

UNIT III:

Conduct a socio-economic survey of the households of the selected village.

UNIT IV:

Based on socio-economic data of the households, prepare a critical field-survey report. Photographs and sketches, in addition to maps and diagrams, may supplement the report.

Books Recommended:

1. Gregory,S, 1980. Statistical methods and the Geographer, Longman, London.
2. Mahmood, A. 1986. Statistical Methods in Geographical Studies, Rajesh Pub., New Delhi.
3. Ibrahim, R., 1992. Socio-Economic Profile of Mewat, Radha Publishers, New Delhi.
4. Robinson, A.H. 1978. Elements of Cartography, John Wiley , New York.
5. Raisz, E. 1962. Principles of Cartography, Mc Graw Hill, New York.
6. Burt J.E. Barber. G.E. Rigby D.L. (2009). Elementary Statistics for Geographers, Guilford Press, New York.

The students have to visit a village/town to conduct socio-Economic survey. Each student will be required to submit a survey report to be evaluated by external and internal examiner.