

**STATE MODEL SYLLABUS FOR UNDER
GRADUATE
COURSE IN GEOGRAPHY
(Bachelor of Arts Examination)**

**UNDER
CHOICE BASED CREDIT SYSTEM**

GEOGRAPHY

Semester		CORE COURSE (14)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Elective Course (AEEC) (2) (Skill Based)	Elective: Discipline Specific DSE (4)	Elective: Generic (GE) (4)
I	CC1	Geomorphology	English Communication/ Odia/ Hindi			GE-I Geography of India
	CCII	Cartography				
II	CCIII	Human Geography	Environmental Studies			GE-II Geography of Odisha
	CCIV	Climatology				
III	CCV	Oceanography		SEC -I Communicative English and English Writing		GE-III Climatology
	CCVI	Statistical Methods in Geography				
	CCVII	Geography of Odisha				
IV	CCVIII	Evolution of Geographical Thought		SEC II University Option		GE- IV Human Geography
	CCIX	Economic Geography				
	CCX	Environmental Geography				
V	CCXI	Regional Planning and Development			DSE-I Population Geography	
	CCXII	Remote Sensing & GIS			DSE -II Resource Geography	
VI	CCXIII	Geography of India			DSE -III Urban Geography	
	CC XIV	Disaster management			DSE – IV or Dissertation/ Project Work	

Geography (Honours)

Core course – 14 papers, Discipline Specific Elective – 4 papers
Generic Elective for Non Geography students – 4 papers. In case University offers 2 subjects as GE, then papers 1 and 2 will be the GE paper.

Marks per paper - Midterm: 15 marks, End term : 60 marks, Practical: 25 Total – 100 marks Credit per paper – 6, Teaching hours per paper – 50 hours + 10 hours tutorial

CC - I: Geomorphology

- Unit - I:** Geomorphology: Meaning, Nature & Scope, Internal Structure of the Earth, Isostasy (Airy and Pratt's view), Rocks-Types and Characteristics, Types of Folds and Faults
- Unit - II:** Earth Movements: Continental Drift, Plate Tectonics, ~~Types of Folds and Faults~~, Earthquakes and Volcanoes (Types, distribution and associated Landforms). Geosynclinal theory and stages of mountain building and Convection current theory.
- Unit - III:** Geomorphic Processes: Types & characteristics of Weathering & Mass Wasting, Cycle of Erosion & evolution of Landforms of Davis and Penck's evolutionary theory).
- Unit - IV:** Geomorphic agents and landforms : (Erosional and Depositional landforms of Fluvial, Karst, Aeolian, Glacial and Coastal origin)

Practical

1. Drawing of relief features using contour lines-Mountain, Plateau, valleys, escarpments and their profiles, construction and use of serial, projected and super-imposed profiles,
2. Use of Planimeter and Rotameter in measurements on maps, Longitudinal and transverse profile of a river, Drainage Pattern and drainage Density
3. Interpretation of simple geological Maps (Introducing the concepts of Dip, Strike, Bedding Plane, Unconformity, Dykes, Folds and Faults).
4. Practical Record and Viva-voce (10 marks)

Text Book

1. Singh, S (2009): Physical Geography , Geomorphology, Prayag Pustak Publications , Allahabad

Reading List:

- Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
- Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
- Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
- Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
- Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
- Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
- Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
- Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
- Thornbury W. D., 1968: Principles of Geomorphology, Wiley.

- Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut
- Tikkaa, R N (1989): Bhautik Bhugol ka Swaroop, Kedarnath Ram Nath, Meerut
- Singh, S (2009): Geomorphology, Prayag Pustak Bhawan, Allahabad.
- Steers, J. A. – Unstable Earth, Kalyani Publisher.

CC - II: Cartography

Unit - I: Cartography-Nature and scope

- Scientific basis of Cartography, needs of map making, characteristics of maps,
- Cartography as a science of human communication
- Branches of Cartography, Scope of cartography

Unit - II: Basic Geodesy, Scale – Concept and application

- Spherical Earth, Ellipsoidal Earth. Geoid Earth
- Geographical Coordinates (Latitude and Longitude), Graticules
- Scale, Construction of types of Scales (Plain, Comparative and Diagonal Scale)

Unit - III: Map Projections

- Meaning and Use, Brief Historical aspect.
- Transformation of area, Distance and Direction
- Simple Cylindrical Projection, Conical Projection with one standard projection

Unit - IV: Slope Analysis and Geological Map Gradient and slope

- Interpretation of Bedding plane, Strike, Dip, structure & stratigraphy of Geological map.
- Slope defined and methods of determination of slope (Wentworth's method and Smith)

Practical

- Construction and use of Graphical, RF & Statement Scale, Diagonal Scale
- Grid Reference System, Latitude, Longitude, International Date Line, Date and Time based on GMT & IST)
- Construction of Map Projections: Simple Cylindrical, Simple conical Projection with one and two standard parallels, Polyconic, Gnomonic and Mercator's
- Cartograms of one, two and three dimensions–Simple and Complex bars, circle and sphere diagram, block diagrams.
- Drawing of Choropleth and isopleths maps, relief and slope maps
- Practical record and viva-voce

Text Book

- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
- Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.

Reference Books

- Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
- Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
- Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.

CC - III: Human Geography

Unit - I: Introduction: Defining Human Geography: Nature, scope and Contemporary Relevance, Man-nature Relationship: Major racial groups and their characteristics

Unit - II: World distribution of major racial groups, language and religion, Cultural realms of the world

Unit - III: Demographic Characteristics of population: Population Composition (Male & Female, Sex Ratio, Age and Sex, Occupational Structure, Population Density), Factor affecting population distribution, Trend of World Population Growth, Demographic Transition Theory, Population Problems in developed and under developed world.

Unit IV: Settlements: Types and pattern of Rural and urban Settlements; concept of urban area, towns and cities, Size Class and Functional Classification of towns and Trend of Urbanization of the world

Practical

- I. Drawing of age sex pyramid of developed, developing and under developed countries
- II. Drawing of population distribution maps using symbols—Simple and multiple dots, circles and spheres, choropleth maps of population density distribution
- III. Drawing of Pie Diagram (Using population data of occupational structure, population composition)
- IV. Trend of population growth, growth of urban population and settlements
- V. Practical records and viva -voce

Text Book

1. Hussain, Majid (2012) Human Geography. Rawat Publications, Jaipur

Reference Books

- Human & Economic Geography- Go cheng leong
- Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
- Daniel, P.A. and Hopkinson, M.F. (1989). The Geography of Settlement, Oliver & Boyd, London. Human Geography, Rupa Publication
- Human Geography, B.S. Negi
- Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
- Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
- Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.

CC - IV: Climatology

Unit - I: Composition and Structure of the atmosphere, Weather and Climate : Elements and Factors, Insolation and Heat Budget of the Earth, World distribution of Temperature – Factors of Distribution, Temperature Inversion.

Unit - II: Atmospheric Pressure and Winds – Pressure Belts and Planetary Winds, Periodic and local winds, Factors affecting general circulation of wind, coriolis effect, Jet Stream.

Unit - III: Humidity: relative and absolute, Forms of Condensation, types of clouds, types of precipitation, classification of climate of Koppen and Thonrthwait.

Unit - IV: Concept of air mass, classification, characteristics, distribution and modification, thunderstorms and tornado, Tropical Cyclones, Temperate Cyclones, weather forecasting.

Practical

1. Introduction to use of simple weather observation instruments: Thermometer, Barometer, hygrometer, anemometer, wind vane, Rain Gauge, Stevenson Screen, Interpretation of weather maps
2. Drawing of Climograph and Hythergraph, Wind rose diagram.
3. Drawing of isopleth maps : isotherms, isobars and isohyets
4. Spatial and temporal distribution of rainfall using choropleth techniques and trend graphs
5. Record & Viva-Voce carries 10 marks

Text Book

1. Lal, D S (2006): *Climatology*, Prayagn Pustak Bhavan, Allahabad

Reading List

- Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
- Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
- Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
- Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
- Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
- Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.
- Gupta L S(2000): *Jalvayu Vigyan*, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
- Vatal, M (1986): *Bhautik Bhugol*, Central Book Depot, Allahabad
- Singh, S (2009): *Jalvayu Vigyan*, Prayag Pustak Bhawan, Allahabad

CC - V: Oceanography

Unit - I: Bottom Relief of the Oceans: Continental shelf, slope, deep sea plain, ocean deeps, mid oceanic ridges, relief features of the Atlantic, Indian and Pacific Ocean

Unit - II: Origin of ocean water, Temperature and salinity of ocean -distribution and determinants, T-S Diagram Ocean Deposits: classification and Distribution.

Unit - III: Movement of Ocean water- Waves, Currents and Tides: Types and characteristics, factors associated with the origin of ocean currents and their impacts, Ocean currents of the Atlantic, Indian and Pacific ocean

Unit -IV: Coral Reefs and atoll: Types, Theories of Origin (Subsidence theory of Darwin and Dana, Glacial Control theory of Louis Agassiz), Marine resources

Practical

1. Interpretation of Topographical Maps.
2. Demarcation of catchment basins and drainage networks, stream ordering and identification and interpretation of drainage patterns.
3. Enlargement and reduction of maps: Graphical and instrumental, use of pantographs
4. Practical records and viva -voce

Text Book

1. Sharma R. C. and M. Vital: *Oceanography*
2. Lal, D. S. – *Oceanography*.

Reference Book:

- King, L. C. : *Oceanography*
- Singh, S. – *Physical Geography*

CC - VI: Statistical Methods in Geography

Unit - I: Use of Data in Geography: Spatial and attribute data, Geographical Data Matrix, Types and Sources of Data (Discrete and grouped, primary and secondary), Scales of Measurement of data (Nominal, Ordinal, Interval, Ratio).Distribution of Data: Normal and Bi-nomial

Unit - II: Descriptive Statistics: Frequency distribution (grouped and ungrouped data), measures of Central Tendency (Mean, Median and Mode), Types of Sampling-Random, stratified, systematic and purposive

Unit - III: Measures of Dispersion (Variance, Mean Deviation, Standard Deviation and Coefficient of Variation. Chi-square test

Unit - IV: Measures of Association: Product moment correlation, Rank correlation, test of significance, coefficient of determination and linear regression.

Practical

1. Drawing of histogram, frequency curve and ogive in grouped and discrete data
2. Calculation & Drawing of graphs showing mean, median, mode in grouped & discrete data
3. Calculation of mean deviation, standard deviation, coefficient of variation,
4. Practical records and viva -voce

Text Book:

1. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
2. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi

Reference Book:

- Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
- Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, NY
- Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London
- King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall
- Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi
- Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.

CC - VII: Geography of Odisha

Unit - I: Physiography of Odisha, River System, Climate, Soil, Natural Vegetation

Unit - II: Agriculture: (a) Production and Distribution of Rice, Pulses, Oil seeds; (b) Agricultural Problems and Prospects

Unit - III: Minerals and power resources:

- (a) Distribution and production of Iron Ore, Bauxite, Chromite, Coal
- (b) Industrialization in Odisha – Problems and prospects, Iron and steel industry, Aluminum Industry, Textile, thermal power plants

Unit - IV: (a) Population: Distribution and Growth, distribution of tribes and tribal population

- (b) Urbanization-Growth of urban population and urban centers
- (b) Transport : Roadways & Railways

Practical

1. Rainfall distribution of Odisha using choropleth techniques (State & District/ District & block)
2. Temperature / rainfall distribution using isopleth techniques giving point level data of important observation centers
3. Drawing of time series graphs to depict decadal growth of population/ urban population
4. Cartographic representation of socio-economic data (One, two three dimensional)
5. Practical records and viva -voce

Text Book:

1. Sinha, B. N. - Geography of Odisha

Reading List:

1. Roy, G. C.- Geography of Odisha

CC - VIII: Evolution of Geographical Thought

Unit - I: Geographical concepts of ancient and mediaval period: Contributions of Greek, Roman & Indian and Arab scholars.

Unit-II: Modern geographical thought: Contributions of Alexander Von Humboldt, Carl Ritter, Ratzel, Vidal De La Blache and Mackinder.

Unit III: Dichotomy in Geography– Environmental Determinism and Possibilism, Systematic and Regional Geography, Ideographic and Nomenothetic, Physical and Human Geography .

Unit-IV: Recent Trends in development of geography– Quantitative Revolution in Geography, Behavioural approach in Geography, radicalism in Geography, Recent changes in methods and approaches to geography.

Practical

1. Introduction to and use of survey Instruments: Prismatic Compass, Leveling, Theodolite / Total Station,
2. Methods of Surveying: Radiation, Intersection, Resection Traversing (Close and Open)
3. Use of GPS / DGPS in observation of coordinate values of a number of points and preparing an outline map of an area by interpolation
4. Preparation and uses of questionnaire and schedule in a socio economic survey
5. Practical records and viva -voce

Text Book:

1. Evolution of Geographical Thought- Majid Hussain

Reference Books:

2. Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice– Hall India.
3. Hartshorn R., 1959: *Perspectives of Nature of Geography*, Rand MacNally and Co.
6. Martin Geoffrey J., 2005: *All Possible Worlds: A History of Geographical Ideas*, Oxford.
7. Holt-Jensen A., 2011: *Geography: History and Its Concepts: A Students Guide*, SAGE.
8. Kapur A., 2001: *Indian Geography Voice of Concern*, Concept Publications.

CC - IX: Economic Geography

Unit - I: Meaning and scope of economic geography, classification of economic activities, Factors affecting location of economic activity with special reference to agriculture and industry, Von Thunen Theory of location of agricultural activity and Weber's theory of Industrial Location.

Unit - II: Primary economic activities: Types and problems, (Subsistence farming, shifting cultivation, forestry and fishing, mining and quarrying), agricultural regions of the world.

Unit - III: Secondary economic activities: Manufacturing (Cotton Textile, Iron and Steel), Industrial Regions of the world: Special Economic Zones and its significance.

Unit - IV: Tertiary economic activities: Transport- Roads and Railways, Air and Water ways, Trade and commerce

Practical

1. Determination of agricultural efficiency (Kendal and Bhatia method) and to show on maps
2. Drawing of Isotims, Isodapanes and industrial location based on Weber's theory,.
3. Traffic flow diagram and travel time maps (Isochrones).
4. Practical records and viva -voce

Text Book

1. Roy, Pritish: *Economic Geography*
2. Gautam, Alaka: *Economic Geography*,

Reference Book

1. Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Wheeler J. O., 1998: *Economic Geography*, Wiley.
3. Durand L., 1961: *Economic Geography*, Crowell.
4. Willington D. E., 2008: *Economic Geography*, Husband Press.
5. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: *The Oxford*

CC - X: Environmental Geography

Unit - I: Environmental Geography – Concept and Scope, Types and Characteristics of environment:

Biotic, abiotic and cultural, Environmental contrast (Global, Continental, Local) Environmental control and concept of tolerance (Light, Temperature, Water, Topography and Edaphic factors)

Unit - II: Ecosystem – Concept, Structure and Functions, Trophic level, food Chain and food web, Bio-geo-chemical Cycle (Nitrogen and Carbon), Energy flow in Ecosystem.

Unit -III: Concept of Biome, Major biomes of the world and their characteristics: Equatorial, Sub-tropical, Temperate and Polar, Nature and characteristics of environmental pollution of water and air

Unit -IV: Environmental degradation; causes and consequences, Environmental conservation methods, programmes and policies in India, Role of International agencies (UNO, UNEP, UNDP, IUCN) in environmental management, concept and strategies of sustainable development, Green Tribunal and its functions in India.

**Practical
(Project Work)**

Submission of a Project Report on any environmental problem of global/national/local significance

Text Book:

1. Santra, S.C *Environmental Science*
2. Singh S., 1997: *Environmental Geography*, Prayag Pustak Bhawan. Allahabad.

Reference Book:

- Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
- Cunningham W. P. and Cunningham M. A., 2004: *Principals of Environmental Science: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
- Goudie A., 2001: *The Nature of the Environment*, Blackwell, Oxford.
- Miller G. T., 2004: *Environmental Science: Working with the Earth*, Thomson BrooksCole, Singapore.
- Odum, E. P. et al, 2005: *Fundamentals of Ecology*, Ceneage Learning India.

CC - XI: Regional Planning and Development

Unit - I: Concept of a Region, Types of region: Formal, Functional and Planning Region, Need for Regional Planning, Evolution of Regional planning in India during five year plans, Characteristics of an Ideal Planning Region

Unit - II: Delineation of Planning Regions; Approaches and Methods, Regional disparity and imbalances in India, Planning Regions of India

Unit - III: Theories and Models for Regional Planning: Growth Pole Model of Perroux; Myrdal, Hirschman, Rostow.

Unit - IV: Policies and Programs for Rural and Regional Development Planning in India, Welfare Programs: IRDP, DPAP, Planning for backward regions, TDA and ITDP, planning for National Capital Region, Urban Area Programs, Concept and application of Human development Index in planning and development

Practical

1. Transport network analysis –Alfa, Beta, Gama indices
2. Nearest neighbor analysis
3. Mapping regional Disparity based on socio-economic data
4. Mapping levels of development based on socio-economic data
5. Practical record and viva-voce

Text Book

1. Chand, Mahesh and V. K. Puri: Regional Planning
2. Mishra R. P : Regional Planning, Concept Publishers, New Delhi

Reference Book:

1. Friedmann J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
2. Haynes J., 2008: *Development Studies*, Polity Short Introduction Series.
3. Peet R., 1999: *Theories of Development*, The Guilford Press, New York.

4. UNDP 2001-04: *Human Development Report*, Oxford University Press.
5. World Bank 2001-05: *World Development Report*, Oxford University Press, New

CC - XII: Remote Sensing and GIS

- Unit - I:** Remote Sensing: Definition and Components, EMS and EMR, Wave and Particle theory of EMR, Types of platforms and sensors, Advantages and limitation of Remote Sensing, Energy interaction with Atmosphere and Earth Surface features (Water, soil and vegetation)
- Unit - II:** Aerial Photography, Principles of stereo vision, Geometry of Aerial Photographs, Image elements and visual interpretation of satellite images.
- Unit - III:** GIS: definition and components, Types of GIS Data (Spatial and attribute), Raster and Vector Data models, Special functions of GIS, GPS elements and its uses..
- Unit - IV:** Application of RS & GIS in land use and land cover mapping, Application in cartography and map making, Mapping of water resources and Natural Vegetation

Practical

1. Stereoscopic vision using stereo cards and identification of objects from cards
2. Feature identification from aerial photographs using Pocket stereoscope/Mirror stereoscope
3. Feature identification from satellite imageries using visual interpretation
4. Identification and mapping of water bodies from satellite imageries
5. Digitization of Odisha state/block /district map and drawing of few point, line and polygon features

Text Book

1. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).

Reference Book:

1. Bhatta, B. (2008) *Remote Sensing and GIS*, Oxford University Press, New Delhi.
2. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press
3. Chauniyal, D. (2010) *Sudur Samvedana Avam Bhaugolik Suchna Pranali*, Sharda Pustak Bhawan, Allahabad.
4. Jensen, J. R. (2005) *Introductory Digital Image Processing: A Remote Sensing Perspective*, Pearson Prentice-Hall.
5. Joseph, G. 2005: *Fundamentals of Remote Sensing* United Press India.

CC - XIII: Geography of India

- Unit - I:** Triple tectonic divisions, Physiography of the Himalayas, Indo-Gangetic Plains, Peninsular India, Climate of India : Weather characteristics of SW and NE Monsoon, soil and natural vegetation
- Unit -II:** Population Distribution, Demographic structure, trend of population growth and urbanization, Distribution of major tribal groups of India, India's population problems and prospects
- Unit-III:** Distribution and utilisation of iron ore, nuclear minerals, coal, petroleum, natural gas, Factors of location and development of automobile, IT, Iron & Steel and Cotton Textile industries, Industrial regions of India
- Unit - IV:** Types of Irrigation in India, characteristics of Indian Agriculture, cropping pattern, production and distribution of rice and wheat, Tea and Coffee, problems of Indian Agriculture

Practical

1. Population density map of India by Choropleth
2. Graphical & cartographic presentation of socio-economic data
3. Pie chart showing occupational structure of India
4. Population pyramid for India
5. Practical record and viva-voce (10 marks)

Text Book

1. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur

2. Khullar, D. R. India: A Comprehensive Geography

Reference Book:

1. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
2. Mandal R. B. (ed.), 1990: *Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective*.
3. Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
4. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
5. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
6. Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.

CC - XIV: Disaster Management

Unit-I: Concept of Hazards and Disasters, Natural and manmade hazards, Types of hazards, Concept of Vulnerability and risk, prevention, mitigation and management.

Unit-II: Disaster management cycle, Pre disaster planning, During disaster management, Post Disaster planning and development, community based disaster preparedness, Role of various stake holders (NGO, GO, NDMA, NIDM, NDRF, ODRAF and OSDMA) in disaster management.

Unit-III: Detail study of nature, characteristics and management of natural hazards: Flood, Cyclone, Drought, Earthquake, Tsunami and Land Slide

Unit-IV: Man made hazards and disasters, causes and impacts; Fire hazards, industrial hazards and nuclear hazards, Salient features of India's disaster management policy.

Practical

Project work – Preparation of a case study report on a specific hazard / disaster based on literature review and or field work

Text books

1. Singh, Savindar (2009): *Disaster Management*

Reference books:

1. Mishra B.J : *Natural hazards and disaster management*
2. Sundar I & Sezuiyan T : *Disaster management*
3. Verma : *Encyclopedia of Disaster management*
4. Eye Publication : *Vulnerable India*
5. Sinha. A. – *Disaster management*, United Press
6. Singh R.B – *Risk Assessment and Vulnerability analysis*.

DISCIPLINE SPECIFIC ELECTIVE

DSE I: Population Geography

Unit- I: Defining the Field, Nature and Scope of population geography; Sources of population data with special reference to India (Census, Vital Statistics and NSS), Population problems and issues.

Unit- II: Population Size, Distribution and Growth – Factors and Determinants, Theories of Growth – Malthusian Theory and Demographic Transition Theory.

Unit-III: Determinants of Population Growth: Fertility, Mortality and Migration-Measures, determinants and implications of fertility, mortality and migration.

Unit-IV: Population Composition and Characteristics – Age-Sex, Rural-Urban, Literacy, Occupational structure, Contemporary population issues–Ageing of Population; Declining Sex Ratio; HIV/AIDS, Trend of urbanization and related Problems.

Practical

1. Population projection: AP, GP and R.G India method, calculation and graphical display
2. Drawing of triangular diagram and Lorenz curve
3. Construction of compound and superimposed pyramids
4. Calculation and presentation of population growth Rate, infant and neonatal mortality rate, maternal mortality ratio based on supplied data
5. Practical record and Viva-Voce

Text book

1. Chandna R. C. and Sidhu M. S., 1980: *An Introduction to Population Geography*, Kalyani Publishers.

Reading List:

- Barrett H. R., 1995: *Population Geography*, Oliver and Boyd.
- Bhende A. and Kanitkar T., 2000: *Principles of Population Studies*, Himalaya Publishing House.
- Clarke J. I., 1965: *Population Geography*, Pergamon Press, Oxford.
- Jones, H. R., 2000: *Population Geography*, 3rd ed. Paul Chapman, London.
- Lutz W., Warren C. S. and Scherbov S., 2004: *The End of the World Population Growth in the 21st Century*, Earthscan.
- Newbold K. B., 2009: *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
- Pacione M., 1986: *Population Geography: Progress and Prospect*, Taylor and Francis.
- Wilson M. G. A., 1968: *Population Geography*, Nelson.
- Panda B P (1988): *Janasankya Bhugol*, M P Hindi Granth Academy, Bhopal
- Maurya S D (2009) *Jansankya Bhugol*, Sharda Putak Bhawan, Allahabad
- Chandna, R C (2006), *Jansankhya Bhugol*, Kalyani Publishers, Delhi

DSE - II: Resource Geography

Unit - I: Natural Resources: Concept, Types, Classification, and Functional Theory of Resources

Unit II: Distribution and Utilization of Land Resources, Water Resources, Forest resources and Energy Resources and mineral resources.

Unit-III: Problems in exploitation, depletion and degradation of resources, Methods of conservation and management of Land, Water, Forest, mineral & Energy Resources

Unit IV: Resource scarcity hypothesis, Concept and approach towards sustainable development of resources,

Practical

1. Simple Correlation and interpretation of correlation coefficient
2. Test of significance of correlation coefficient
3. Rank Correlation
4. Simple Linear Regression, Drawing of scattergram and regression line
5. Practical record and viva-voce

Text book

1. Singh, R.L. 1988 (Reprint) — *India: A Regional Geography*

Reading List:

- 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.
- Jones G. & Hollier G., 1997: *Resources, Society and Environmental Management*, Paul Chapman, London.
- Klee G., 1991: *Conservation of Natural Resources*, Prentice Hall, Englewood.
- Mather A. S. and Chapman K., 1995: *Environmental Resources*, John Wiley and Sons, New York.
- Mitchell B., 1997: *Resource and Environmental Management*, Longman Harlow, England.
- Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge Univ. Press, N Y

- Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge. London.

DSE - III: Urban Geography

Unit - I: Urban geography: Introduction, nature and scope; history of urbanization, Trends and Patterns of Urbanization in developed, developing countries, world and India.

Unit -II: Functional classification of cities: Quantitative and Qualitative Methods, Christaller Theory, Morphology of Urban Settlements & Urban Sphere of Influence and umland, concept of CBD, rural-urban fringe.

Unit-III: Theories of urban growth, Urban Issues: problems of housing, slums, civic amenities (water and transport), Air Pollution and Noise Pollution,

Unit -IV: Case studies of Delhi, Mumbai, Kolkata, Bhubaneswar and Chandigarh with reference to city planning and Urban Issues.

Practical

1. Functional classification of towns
2. Projection of urban population
3. Delimitation of C.B.D and umland
4. Gravity and population potential model.
5. Practical Record and Viva-Voce (10 marks)

Text books

1. Ramachandran R (1989): *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi

Reading List:

- Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
- Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, Routledge.
- Hall T., 2006: *Urban Geography*, Taylor and Francis.
- Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
- Knox P. L. & McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Prentice Hall NY.
- Sassen S., 2001: *The Global City: New York, London and Tokyo*, Princeton University Press.
- Ramachandran R (1989): *Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi
- Ramachandran, R., 1992: *The Study of Urbanisation*, Oxford University Press, Delhi
- Singh, R.B. (Eds.) (2001) *Urban Sustainability in the Context of Global Change*, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
- Singh, R.B. (Ed.) (2015) *Urban development, challenges, risks and resilience in Asian megacities*. *Advances in Geographical and Environmental Studies*, Springer

GEOGRAPHY – DSE – IV

FIELD WORK AND RESEARCH METHODOLOGY

Aim of the Course

To introduce research aptitude among young geographers.

Objectives of the Course

- * To enable students to develop a general understanding of the methodology of research in geography.
- * To strengthen the need of interdisciplinary research.
- * To inculcate the role of Case Study analysis in the methodology of geography.
- * To understand the value of Field Work and Primary Data in geographical research.

Unit – I : Fundamentals of Research Literacy

- a) Meaning and objectives of research; types of research (Historical, Case Study, Descriptive and Experimental),
- b) Significance of Research, Ethics in Research and Plagiarism,
- c) Role and Utility of Fieldwork in Geography,
- d) Sources & Types of Data Collection (Reconnaissance, Primary & Secondary)

Unit – II : Approaches to Research

- a) Approach and Methods of Geographic Research,
- b) Ex-post facto, Laboratory Experiments,
- c) Field Study and Experiments, Field Survey Research,
- d) Evaluation Research and Action Research.

Unit – III : Methods and Field Techniques

- a) Field Techniques in Geography, Selection of Appropriate Technique, Observation (Participant / Non Participant),
- b) Preparation of Questionnaires and Schedules (Open/ Closed / Structured / Non-Structured);
- c) Participatory Rapid Appraisal and Focus Group Discussion
- d) Content Analysis

Unit – IV : Preparation of a Research Report

- a) Designing the Research Report (Documentation Structure, Layout, Fonts, Setting of Maps, Diagrams, Tables , Appendices, Bibliography and Reference)
- b) Review of Literature and Different Methods of In-text and End of Paper Citation,
- c) Style of Citation in Science and Social Science Research(Books, Journals, Reports, Thesis, News Items, Web Sources)

Practical for DSE – IV

Field Work and Research Methodology

- a) Preparation of a Observation Schedule (Participant / Non Participant) and Questionnaire (Open/ Closed / Structured / Non-Structured);
- b) Preparation of a Guide Line for Focus Group Discussion and PRA
- c) Field Testing of Questionnaire and FGD-PRA guidelines t on a village level socio-economic study.
- d) Preparation of a Research Report
- e) Viva Voce

Note:

- i) Each student will prepare an individual report based on primary and secondary data collected during field work.
- ii) Duration of the field work should not exceed one week
- iii) The word count of the report should be around 5000 excluding figures, tables, photographs, maps, references and appendices.
- iv) One copy of the report on A 4 size paper should be submitted in soft binding.

Main Books

1. Majid Hussain (1994), Methodology of Geography, Anmol Pubication, New Delhi.
2. K.L.Narasimha Murthy (1999) ,Geographical Research , Concept Publishing Company, New Delhi

Reference Books

3. Research Methodology - Methods and Techniques, Revised Edited by C.R. Kothari (2004), New Age International Publishers, New Delhi.
4. Quantitative Social Research Methods by Kultar Singh (2007), Sage Publication.
5. Social Survey Methods by Paul Nicholas (2009), Oxfarm Publishers Delhi.

OR

Geography DISSERTATION/ PROJECT WORK

A project report may be given in view of discipline specific papers. It is considered as a special course involving application of knowledge solving and exploring a real life situation and difficult problem.

GENERIC ELECTIVE

GE - I: Geography of India

Unit I: Physiographic Divisions of India, soil and vegetation, climate (characteristics and classification)

Unit II: Population: Distribution and growth, Demographic structure, Distribution of population by race, religion, language and tribes, urbanisation

Unit III: Mineral and power resources: distribution and utilisation of iron ore, coal, Petroleum, Natural gas, Nuclear Minerals: Irrigation, Cropping pattern, Production & distribution of rice, wheat, Tea, Coffee

Unit IV: Industrial development: Iron and steel, Aluminium, Automobile and Information technology
Transport in India: Road, Rail and Airways, Waterways

Practical

1. Study and interpretation of topographic Maps
2. Cartograms – Pair-Bar diagram, complex bar, wheel diagram
3. Maps drawing – Simple dot maps, Multiple dot maps
4. Practical record and viva-voce

Text Book

1. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur
2. Khullar, D. R. India: A Comprehensive Geography

Reading List:

1. Deshpand 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
4. Sdyasuk Galina and P. Sengupta (1967): Economic Regionalisation of India, Census of India

GE II: Geography of Odisha

Unit I: Physiography of Odisha: Coastal Plains, Middle Mountainous Region, Western Plateau, River System, Climate, Soil, Natural Vegetation

Unit II: Types of Irrigation, Agriculture: Production and Distribution of Rice, Pulses, Oil seeds, Agricultural Problems and Prospects

Unit III: Minerals and power resources: (a) Distribution of Iron Ore, Bauxite, Coal & Chromite
Iron and steel industry, Aluminum Industry, Cotton Textile

Unit IV: (a) Population: Distribution and Growth, Urbanisation, (b) Transport: Roadways & Railways

Practical

1. Drawing of isopleths maps using rainfall / temperature data
2. Drawing Population Density map of Odisha by Choropleth method
3. Population Pyramid Diagram

4. Construction of Pie diagram
3. Practical Record and Viva-voce (10% of marks)

Text books

1. Sinha, B. N. - Geography of Odisha

Reading List:

1. Roy, G. C. - Geography of Odisha

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GE III: Climatology

- Unit I:** Composition and Structure of the atmosphere, Insolation and Heat Budget of the Earth, Horizontal distribution of Temperature and associated Factors, Temperature Inversion.
- Unit II:** Atmospheric Pressure, Pressure Belts of the globe, Planetary Winds, Periodic and local winds .
- Unit III:** Atmospheric Moisture and Humidity, Forms of Condensation, Fog and Clouds, Precipitation and its Types, Stability and Instability of the atmosphere.
- Unit IV:** Cyclones – Tropical Cyclones, Extra Tropical Cyclones, Thunderstorm and tornado, Monsoon - Origin and characteristics

Practical

1. Demonstration and use of weather instruments- Maximum & Minimum Thermometer, Barometer, Rain Gauge, Anemometer, Wind Vane
2. Interpretation of Weather Map, Drawing of Climograph.
3. Record & Viva-Voce carries 10% of marks

Text books

1. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad

Reading List -

2. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
3. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
4. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
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. Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad
8. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

GE IV: Human Geography

- Unit I:** Meaning and scope of Human Geography; Major Themes; Contemporary Relevance and subfields, Development of human geography
- Unit II:** Major races of mankind, their characteristics and distribution, Cultural Realms of the world; Religion and Language of World
- Unit III:** World distribution of population, world Population Growth,, Population Composition; Demographic Transition Theory
- Unit IV:** Types & Patterns of Rural Settlements; Urban Settlements; Definition, size and functional classification, characteristics, Trends and Patterns of World Urbanization

Practical

1. Population distribution by multiple dots and population density
2. Decadal Population Growth- Time series graphs, bar diagrams
3. Pie Diagram showing occupational structure and population composition
4. Population Projection by A.P and GP method
5. Practical Record and Viva voce

Text Book

Hussain, Majid (2012) Human Geography. Rawat Publications, Jaipur

Reading List:

1. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
2. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
3. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
4. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
5. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
6. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.
7. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur

GEOGRAPHY -PASS

Semester	Course	Course Name
I	DSC-I DSC-I Practical	Geography of India
II	DSC-II DSC-II Practical	Geography of Odisha
III	DSC-III DSC-III Practical	Climatology
IV	DSC-IV DSC-IV Practical	Human Geography
V	DSE-I DSE-I Practical	Population Geography
VI	DSE-II DSE-II Practical	Resource Geography

DISCIPLINE SPECIFIC CORE

DSC I: Geography of India

Unit I: Physiographic Divisions of India, soil and vegetation, climate (characteristics and classification)

Unit II: Population: Distribution and growth, Demographic structure, Distribution of population by race, religion, language and tribes, urbanisation

Unit III: Mineral and power resources: distribution and utilisation of iron ore, coal, Petroleum, Natural gas, Nuclear Minerals: Irrigation, Cropping pattern, Production & distribution of rice, wheat, Tea, Coffee

Unit IV: Industrial development: Iron and steel, Aluminium, Automobile and Information technology
Transport in India: Road, Rail and Airways, Waterways

Practical

1. Study and interpretation of topographic Maps
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DSC II: Geography of Odisha

Unit I: Physiography of Odisha: Coastal Plains, Middle Mountainous Region, Western Plateau, River System, Climate, Soil, Natural Vegetation

Unit II: Types of Irrigation, Agriculture: Production and Distribution of Rice, Pulses, Oil seeds, Agricultural Problems and Prospects

Unit III: Minerals and power resources: (a) Distribution of Iron Ore, Bauxite, Coal & Chromite
Iron and steel industry, Aluminum Industry, Cotton Textile

Unit IV: (a) Population: Distribution and Growth, Urbanisation, (b) Transport: Roadways & Railways

Practical

6. Drawing of isopleths maps using rainfall / temperature data
7. Drawing Population Density map of Odisha by Choropleth method
3. Population Pyramid Diagram
4. Construction of Pie diagram
4. Practical Record and Viva-voce (10 marks)

Text books

1. Sinha, B. N. - Geography of Odisha

Reading List:

1. Roy, G. C. - Geography of Odisha

DSC III: Climatology

- Unit I:** Composition and Structure of the atmosphere, Insolation and Heat Budget of the Earth, Horizontal distribution of Temperature and associated Factors, Temperature Inversion.
- Unit II:** Atmospheric Pressure, Pressure Belts of the globe, Planetary Winds, Periodic and local winds .
- Unit III:** Atmospheric Moisture and Humidity, Forms of Condensation, Fog and Clouds, Precipitation and its Types, Stability and Instability of the atmosphere.
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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.
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8. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

DSC IV: Human Geography

- Unit I:** Meaning and scope of Human Geography; Major Themes; Contemporary Relevance and subfields, Development of human geography
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- Unit III:** World distribution of population, world Population Growth,, Population Composition; Demographic Transition Theory
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Practical

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 - a. Pie Diagram showing occupational structure and population composition
 - b. Population Projection by A.P and GP method
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2. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
3. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
4. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.

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

DSE I: Population Geography

- Unit- I:** Defining the Field, Nature and Scope of population geography; Sources of population data with special reference to India (Census, Vital Statistics and NSS), Population problems and issues.
- Unit- II:** Population Size, Distribution and Growth – Factors and Determinants, Theories of Growth – Malthusian Theory and Demographic Transition Theory.
- Unit-III:** Determinants of Population Growth: Fertility, Mortality and Migration-Measures, determinants and implications of fertility, mortality and migration.
- Unit-IV:** Population Composition and Characteristics – Age-Sex, Rural-Urban, Literacy, Occupational structure, Contemporary population issues–Ageing of Population; Declining Sex Ratio; HIV/AIDS, Trend of urbanization and related Problems.

Practical

6. Population projection: AP, GP and R.G India method, calculation and graphical display
7. Drawing of triangular diagram and Lorenz curve
8. Construction of compound and superimposed pyramids
9. Calculation and presentation of population growth Rate, infant and neonatal mortality rate, maternal mortality ratio based on supplied data
10. Practical record and Viva-Voce

Text book

1. Chandna R. C. and Sidhu M. S., 1980: *An Introduction to Population Geography*, Kalyani Publishers.

Reading List:

1. Barrett H. R., 1995: *Population Geography*, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: *Principles of Population Studies*, Himalaya Publishing House.
3. Clarke J. I., 1965: *Population Geography*, Pergamon Press, Oxford.
4. Jones, H. R., 2000: *Population Geography*, 3rd ed. Paul Chapman, London.
5. Lutz W., Warren C. S. and Scherbov S., 2004: *The End of the World Population Growth in the 21st Century*, Earthscan.
6. Newbold K. B., 2009: *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
7. Pacione M., 1986: *Population Geography: Progress and Prospect*, Taylor and Francis.
8. Wilson M. G. A., 1968: *Population Geography*, Nelson.
9. Panda B P (1988): *Jansankhya Bhugol*, M P Hindi Granth Academy, Bhopal
10. Maurya S D (2009) *Jansankhya Bhugol*, Sharda Putak Bhawan, Allahabad
11. Chandna, R C (2006), *Jansankhya Bhugol*, Kalyani Publishers, Delhi

. DSE - II: Resource Geography

- Unit - I:** Natural Resources: Concept, Types, Classification, and Functional Theory of Resources
- Unit II:** Distribution and Utilization of Land Resources, Water Resources, Forest resources and Energy Resources and mineral resources.
- Unit-III:** Problems in exploitation, depletion and degradation of resources, Methods of conservation and management of Land, Water, Forest, mineral & Energy Resources
- Unit IV:** Resource scarcity hypothesis, Concept and approach towards sustainable development of resources,

Practical

1. Simple Correlation and interpretation of correlation coefficient
2. Test of significance of correlation coefficient
3. Rank Correlation

4. Simple Linear Regression, Drawing of scattergram and regression line
5. Practical record and viva-voce

Text book

1. Singh, R.L. 1988 (Reprint) — India: A Regional Geography

Reading List:

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

Geography SEC-I : Disaster Management

- Unit I:** Concept of Hazards, Disasters, Natural and man made hazards, Types of hazards, Concept of disaster management, Vulnerability and risk.
- Unit II:** Disaster management cycle, Pre disaster management, During disaster management, Post Disaster review and management, Prevention, mitigation, preparedness, Adaptation.
- Unit III:** Detail study of nature and characteristics of hazards: Flood, Cyclone, Drought, Earthquake. Manmade hazards – Industrial and Fire.
- Unit IV:** Indigenous community based disaster preparedness. Role of NDMA, NIDM, NDRF, OSDMA & ODRAF, Disaster working system. Role of NGOs and GOs in disaster management.

Project (Practical) – Preparation of a report on a specific hazard/ disaster

Text books

1. Singh, Savindar (2009): Disaster Management

Reference books:

1. Mishra B.J : Natural hazards and disaster management
2. Sundar I & Sezuiyan T : Disaster management
3. Verma : Encyclopedia of Disaster management
4. Eye Publication : Vulnerable India
5. Sinha. A. – Disaster management, United Press
6. Singh R.B – Risk Assessment and Vulnerability analysis.

Training programs required for under graduate faculty

1. R.S. & G.I.S. with practical modules – 21days
2. Advance cartographic & statistical techniques and its application in Geography.
3. Research methodology and field work in Geography.

Laboratory Equipments Required

1. Desktop - 10
2. Print set - 2
3. Plan meter -
4. Rota meter -
5. Toposheets -
6. Satellite image-
7. Aerial photograph-
8. Stereoscope
9. Parallax Bar
10. Tracing Table
11. GPS (Garmin) - 5
12. Clinometers Compass

Student Project

1. Environment
2. Rural Development
3. Urban studies
4. Natural Hazards