VIKRAM DEB AUTONOMOUS COLLEGE
JEYPORE, KORAPUT, ODISHA

COURSE OF STUDIES
OF

BACHELOR DEGREE ARTS
UNDER CBCS

Subject: **GEOGRAPHY**

WITH AFFECT FROM 21-22 ADMISSION BATCH

Published by

VIKRAM DEB AUTONOMOUS COLLEGE
JEYPORE, KORAPUT, ODISHA
Website: www.vikramdebcollege.ac

COURSE STRUCTURE

First Semester

Course Opted	Course Name	Credits	Marks
AECC	English Communication/Odia	4	100
CC -I	Geomorphology	6	100
CC -II	Cartography	6	100
GE-I		6	100

Total Credit- 22 **Total Marks- 400**

Second Semester

Course Opted	Course Name	Credits	Marks
AECC	Environmental Studies	4	100
CC -III	Human Geography	6	100
CC -IV	Climatology	6	100
GE-II		6	100

Total Credit- 22 **Total Marks- 400**

Third Semester

Course Opted	Course Name	Credits	Marks
C-V	Oceanography	6	100
C-VI	Statistical Methods in Geography	6	100
C-VII	Geography of Odisha	6	100
GE-I		6	100
SEC-I	Communicative English and English Writing	4	100

Total Credit- 28 **Total Marks- 500**

Fourth Semester

Course Opted	Course Name	Credits	Marks
C-VIII	Evolution of Geographical Thought	6	100
C-IX	Economic Geography	6	100
C-X	Environmental Geography	6	100
GE-II		6	100
SEC-II	University Option	4	100

Total Credit- 28 **Total Marks- 500**

Fifth Semester

Course Opted	Course Name	Credits	Marks
C-XI	Regional Planning and Development	6	100
C-XII	Remote Sensing & GIS	6	100
DSE-I	Population Geography	6	100
DSE-II	Resource Geography	6	100

Total Credit- 24 **Total Marks- 400**

Sixth Semester

Course Opted	Course Name	Credits	Marks
C-XIII	Geography of India	6	100
C-XIV	Disaster Management	6	100
DSE-III	Urban Geography	6	100
DSE-IV	Dissertation/ Project Work	6	100
	OR DSE-IV Dissertation 06 100*		

Total Credit- 24 **Total Marks- 400**

Semester – 1st to 6th Semester

Total Credit- 148 **Total Marks- 2600**

Geography (Honours)

Core course – 14 papers, Discipline Specific Elective – 4 papers

Generic Elective for Non Geography students – 4 papers. Incase 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

Geography is the study of places and the relationships between people and their environments. Geographers explore both the physical properties of Earth's surface and the human societies spread across it. They also examine how human culture interacts with the natural environment and the way those locations and places can have an impact on people. Geography seeks to understand where things are found, why they are there, and how they develop and change over time. The study of the diverse environments, places, and spaces of Earth's surface and their interactions. It seeks to answer the questions of why things are as they are where they are. The modern academic discipline of geography is rooted in ancient practice, concerned with the characteristics of places, in particular their natural environments and peoples, as well as the relations between the two.

PROGRAMME OUTCOMES (Pos)

The BA (Hons) geography programme in Vikram Deb (Auto) college , jeypore is an attempt to both introduce and at the same time provide an depth look into one of the most challenging subject that one can study .

After completing B.A. Programme in Geography, students will be able to ...

- Demonstrate knowledge of physical and cultural features of the earth and locate them on a map.
- Know about the basic disciplines of Geography and its sub branches.
- Know the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters,composition and structure of atmosphere, hydrosphere, etc.
- Differentiate between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.
- Get information about the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc.
- Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques.
- Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems.
- Construct various types of projections and scales as per requirement of the study.
- Collect primary and secondary data in the field.
- Apply various statistical formulas to analyse data.

- Use cartographic techniques with the help of simple software techniques like MS Excel Handle topographical and weather maps and interpret them .
- Know about Geographical Information System (GIS) and Remote Sensing .

PROGRAMME SPECIFIC OUTCOMES (Pso)

- Student will gain the knowledge of physical geography. They will gather knowledge about thefundamental concepts of Geography and will have a general understanding about the geomorphologic and geotectonic process and formation. Imbibing knowledge, skills and holistic understanding of the Earth,atmosphere, oceans and the planet through analysis of landform development; crustal mobility and tectonics, climate change.
- Associating landforms with structure and process; establishing man-environment
- relationships; and exploring the place and role of Geography vis-a-sis other social and earth sciences.Students can easily correlate the knowledge of physical geography with the human geography. They will analyze the problems of physical as well as cultural environments of both rural and urban areas. Moreover they will try to find out the possible measures to solve those problems .
- Understanding the functioning of global economies, geopolitics, global geostrategic views and functioning of political systems .
- Developing a sustainable approach towards the ecosystem and the biosphere with a view to conserve natural systems and maintain ecological balance.
- The physical environment, human societies and local and/or global economic systems are integrated to the principles of sustainable development
- Inculcating a tolerant mindset and attitude towards the vast socio-cultural diversity of India by studying and discussing contemporary concepts of social and cultural geography. Explaining and analyzing the regional diversity of India through interpretation of natural and planning regions.
- Analyzing the differential patterns of the human habitation of the Earth, through studies of human settlements and population dynamics. Understanding and accounting for regional disparities, poverty, unemployment and the impacts of globalization .
- Understanding the history of the subject; over viewing ancient and contemporary geographical thought and its relationship with modern concepts of empiricism, positivism, radicalism, behaviouralism , idealism etc.

- Sensitization and awareness about the hazards and disasters to which the subcontinent is vulnerable; and their management.
- As a student of the Course they will enrich their observation power through field experience and in future this will be helpful for identifying the socio- environmental problems of their community.

Training in practical techniques of mapping, cartography, software, interpretation of maps, photographs and images etc; so as to understand the spatial variation of phenomena on the Earth's surface. They will learn how to prepare map based on GIS by using the modern geographical map making technique .

CC - I: Geomorphology

Learning outcomes :

- Learning Objectives: The objectives of this course are to introduce the concept Geomorphology in adequate manner, many facets of surface relief features and to understand various aspects of their growth and evolution on the Earth.
- Learning Outcomes: The course will provide an understanding of the conceptual and dynamic aspects of landform development. Students will also learn the relevance of applied aspects of Geomorphology in various fields.

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

Learning outcomes :

- Understand and prepare different kinds of maps.
- Recognize basic themes of map making.
- Development of observation skills.
- Students understand the importance of toposheets and know conventional signs and symbols.

Unit - I: Cartography-Nature and scope

(a) Scientific basis of Cartography, needs of map making, characteristics of maps,

(b) Cartography as a science of human communication

(c) Branches of Cartography, Scope of cartography

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

(a) Spherical Earth, Ellipsoidal Earth. Geoid Earth

(b) Geographical Coordinates (Latitude and Longitude), Graticules

(c) Scale, Construction of types of Scales (Plain, Comparative and Diagonal Scale)

Unit - III: Map Projections

(a) Meaning and Use, Brief Historical aspect.

(b) Transformation of area, Distance and Direction

(c) Simple Cylindrical Projection, Conical Projection with one standard projection

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

(a) Interpretation of Bedding plane, Strike, Dip, structure & stratigraphy of Geological map.

(b) Slope defined and methods of determination of slope (Wentworth's method and Smith)

Practical

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

Text Book

1. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani

Publishers.
2. 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

Learning outcomes :

- Gain knowledge about major themes of human Geography.
- Acquire knowledge on the history and evolution of humans.
- Understand the approaches and processes of Human Geography as well as the diverse patterns of habitat and adaptations.
- Develop an idea about space and society.

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

Learning outcomes :

- Understand the elements of weather and climate, different atmospheric phenomena and climate change.
- Learn to associate climate with other environmentaland human issues. Approaches to climate classification.
- To analyze the dynamics of the Earth's atmosphere and global climate. Assessing the role of man in global climate change.
- Prepare various climatic maps and charts and interpret them.
- Learn to use of various meteorological instruments.
- Learn the interaction between the atmosphere and the earth's surface. Understand the importance of the atmospheric pressure and winds.
- Understand how atmospheric moisture works .

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, corriolis 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

Learning outcomes :

- Analyse the concepts of Hydrology and Oceanography • Emphasizing the significance of groundwater quality and its circulation
- Evaluate the role of the global hydrological cycle.
- Studying the behavior and characteristics of the global oceans.
- Realize the importance of water conservation.
- Identify marine resources and characteristics of ocean waters.

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

Learning outcomes :

- Statistical methods are applied in geography in order to make precise and unambiguous statements.
- To Learn the significance of statistics in geography.
- Understand the importance of use of data in geography
- Recognize the importance and application of Statistics in Geography
- Interpret statistical data for a holistic understanding of geographical phenomena.
- Know about different types of sampling.
- Develop an idea about theoretical distribution.
- Learn to use tabulation of data.
- Gain knowledge about association and correlation.
- Learning Outcomes: Keeping in view the nature of data and purpose of study, students would be able to make a rational choice amongst listed various statistical methods.

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**

Learning outcomes :

- The course provides an insight into different aspects of odisha regional vitality towards unity, stability and progress.

- The student will get familiarised with the geographic dimensions of Odisha in terms of its political and administrative characteristics; aspects of its regional vitality.

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 recourses:

(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

(C) Transport : Roadways & Railways

Practical

1. Temperature / rainfall distribution using isopleth techniques giving point level data of important observation centers
2. Drawing of time series graphs to depict decadal growth of population/ urban population
3. Cartographic representation of socio-economic data (One, two three dimensional)
4. 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

Learning outcomes :

- Perceive the evolution of the philosophy of Geography
- Appreciate the contribution of the thinkers in Geography.
- Give power point presentations on different schools of geographical thought.
- Discussing the evolution of geographical thought from ancient to modern times.
- Establishing relationship of Geography with other disciplines and man-environment relationships.
- Analyzing modern and contemporary principles of Empiricism, Positivism, Structuralism, Human and Behvioral Approaches in Geography.

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 Nomeothetic, 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. Hartshone 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**

Learning outcomes :

- Understand the concept of economic activity, factors affecting location of economic activity. Gain knowledge about different types of Economic activities
- Assess the significance of Economic Geography, the concept of economic man and theories of choice.
- Analyze the factors of location of agriculture and industries.
- Understand the evolution of varied types of economic activities.
- Map and interpret data on production, economic indices, transport network and flows.

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

Learning outcomes :

- The basic objectives of the course are to apprise the students about our environment, to understand its interrelationship with man and his linkages with other organisms, which varies in different biomes.
- Also, to sensitise the students with the Environmental problems and degradations.
- The Students will learn the importance of conserving biodiversity to maintain ecological balance as well as national and international concerns on various environmental issues.

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, Biogeo- chemical Cycle (Nitrogen and Carbon), Energy flow in Ecosystem.

Unit -III: Concept of Biome, Major biomes of the world and their characteristics: Equatorial, Subtropical, 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.

 Cunninghum W. P. and Cunninghum 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

Learning outcomes :

- Understand and identify regions as an integral part of geographical study.
- Appreciate the varied aspects of development and regional disparity, in order to formulate measures of balanced development.
- Analyzing the concept of regions and regionalization
- Studying typical physiographic, planning, arid and biotic regions of India. Understanding the detailed geography of India
- Gain knowledge about definition of region, evolution and types of regional planning. Develop an idea about choice of a region for planning.
- Build an idea about theories and models for regional planning. Know about measuring development indicators.
- They can know about delineation of formal regions by weighted index method and also delineation of functional regions by breaking point analysis.
- Gain knowledge about measuring inequality by Location Quotient, and also measuring regional disparity

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

Learning outcomes :

- Have knowledge of the principles of remote sensing, sensor resolutions and image referencing schemes.
- Interpret satellite imagery and understand the preparation of false color composites from them.
- Training in the use Geographic Information System (GIS) software for contemporary mapping skills.
- Analyzing and interpreting remotely sensed satellite images and aerial photographs in order to understand topographical and cultural variations on the Earth's surface.
- Conducting field excursions and preparation of field report on research on problem in different areas of India
- Apply GIS to the preparation of thematic maps.

Use GNSS.

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

Learning outcomes :

- Students would be understanding geography of our nation.
- Acquire an understanding and relationship of between physiography and drainage, climate, soil
- Locate resources of the country on map
- Understand significance of age and discover new technique used in agriculture
- Develop a solid understanding of the concept of region and its importance in planning and development
- Elaborate relationship with India and its neighbouring countries.
- Aware about the resources and its conservations .
- They can know about their own countries land formation, climate and natural vegetation.
  CO2.
- They understand the population problems in India. Access the population policies and reaction the countries.
- They understand globalization and Indian economy. And also understand the regional distribution of resource.

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

Learning outcomes :

- Understand the nature of hazards and disasters.
- Assess risk, perception and vulnerability with respect to hazards.
- Prepare hazard zonation maps.
- Assessing the nature, impact and management of major natural and man-made hazards affecting the Indian subcontinent.
- Students would be aware of concept of disaster and its relationship with Geography.
- Classify various types of disasters.
- Understand terminology and concepts used in Disaster Management.
- Elaborate structural and non-structural measures used in Disaster Management.
- Discuss causes, effects of disasters and locate areas on the map.
- Differentiate global issues and describe their causes, effects and remedies.

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: Manmade 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

Learning outcomes :

- Understand the nature of population. Know about composition of population, like-age, sex marital status, family, economic composition and language.
- Analyze the global trend and patterns of population growth in developing countries, and migration patterns.
- Evaluate the population growth theory and migration theories.
- Understand the population policies in different countries.

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

Learning outcomes :

- Understand the concept and classification of resources
- Undertand the approaches to resource utilization
- Appreciate the significance of resources
- Assess the pressure on resources
- Analyze the problems of resource3 depletion with special reference to forests, water and fossil fuels
- Understand the concept of Sustainable Resource development
- Understand the distribution, utilization, problems and management of metallic and non-metallic mineral resources
- Analyze the contemporary energy crisis and assess the future scenario
- Understand the concept of Limits to Growth, resource sharing and sustainable use of resources
- Develop the skill of mapping forest cover from satellite images
- Develop the skill of mapping water bodies from satellite images
- Analyze the decadal changes in state-wise production of coal and iron ore
- Learn to compute HDI .

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

Learning outcomes :

- Understand the nature, scope, approaches and recent trends in urban geography .
- Temporal analysis of urban growth using census data
- Trace the origin of urban places over time and analyze the factors, stages and characteristics of these places
- Analyze the theories of urban evolution and growth,Hierarchy of urban settlements
- Understand the various aspects of urban place : location, site and situation; Rank-size rule and Law of primate city
- Understand the concept of urban hierarchies
- Understand the patterns of urbanization in developed and developing countries
- Understand the ecological processes of urban growth; urban fringe; city-region
- Analyze the models on city structure
- Identify and analyze the problems of housing, slums and civic amenities
- Understand the patterns and trends of urbanization in India
- Assess the policies on urbanization in post-liberalized India
- Study the changing land use of Delhi, Kolkata and Chandigarh
- Learn the technique to plot Rank-Size Rule and establish a hierarchy of urban settlements
- Assess state-wise variation and trends of urbanization • Learn to analyze census data to measure urban growth
- Develop a skill to prepare urban land use map from satellite images .

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

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.