COURSE OUTCOME OF GEOGRAPHY HONOURS (CBCS SYLLABUS - From July, 2018 to June, 2023)

CORE COURSE	COURSE SPECIFIC OUTCOME
GEOACOR01T & P : GEOTECTONICS & GEOMORPHOLOGY (6 Credits) **THEORY - 4 Credits** **Unit I: Geotectonics** 1. Earth's tectonic and structural evolution with reference to geological time scale. 2. Earth's interior with special reference to seismology. Isostasy: Models of Airy and Pratt. 3. Plate Tectonics as a unified theory of global tectonics: Processes & landforms at plate margins and hotspots. 4. Folds and Faults—origin and types. **Unit II: Geomorphology** 5. Degradational processes: Weathering, mass wasting and resultant landforms. 6. Development of river network and landforms on uniclinal and folded structures. 7. Development of landforms on granites, basalts and limestones. 8. Coastal processes and landforms. 9. Glacial and glacio-fluvial processes and landforms. 10. Aeolian and fluvial-aeolian processes and landforms. 11. Models on landscape evolution: Views of Davis, Penck and Hack. **PRACTICAL - 2 Credits** 1. Megascopic identification of (a) mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, shale, limestone, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble. 2. Interpretation of geological maps with unconformity and intrusions on uniclinal and folded structures.	• This paper aims to provide an in-depth knowledge about the physical features of the earth. • It focuses on various aspects of the earth's surface, especially the lithosphere. • Through this paper students will gain knowledge about the topographic and surficial characteristics of the earth surface. • In addition to this it also aims to make the students aware of the dynamic geomorphic processes responsible for the development of landforms of varied types and nature. • This paper also focuses on the creation, evolution, structure, and destruction of various landforms of the earth. • On the other hand, the practical portion of this core course aims to train the students with the ability to read, measure and construct maps explaining the physical characteristics of the topography of the earth and preparation of various profile drawings to explain the geomorphic processes of the earth in a better way.

GEOACOR02T & P : CARTOGRAPHIC TECHNIQUES (6 Credits) **THEORY - 4 Credits** 1. Maps: Classification and types. Components of a map. 2. Concept and application of scales: Plain, comparative, diagonal and vernier. 3. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps. 4. Coordinate systems: Polar and rectangular. 5. Concept of generating globe and UTM projection. 6. Grids: angular and linear systems of measurement. 7. Map projections: Classification, properties and uses. **PRACTICAL - 2 Credits** 1. Graphical construction of scales: Plain, comparative, diagonal and vernier. 2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with two standard parallels, Bonne's, Cylindrical Equal Area, and Mercator's. 3. Delineation of drainage basin from Survey of India topographical map. Construction and interpretation of relief profiles (superimposed, projected and composite), relative relief map, slope map (Wentworth), and stream ordering (Strahler) on a drainage basin. 4. Correlation between physical and cultural features from Survey of India topographical maps using transect charts.	• This paper aims to provide an in-depth knowledge about the theoretical understanding of the science of map making. • Various concepts are taught in this paper regarding various kinds of maps, their scales, uses, utilities etc. • Practical portion mainly deals with the equipment to construct various types of maps, based on various projections. • Also, different surveying techniques are there with both manual and digital tools as well as methods are taught so that the students are capable of using such techniques in the practical field.
GEOACOR03T : HUMAN GEOGRAPHY (6 Credits) **Unit I: Nature and Principles** 1. Nature, scope and recent trends. Elements of Human Geography. 2. Approaches to Human Geography; Resource, Locational, Landscape, Environmental. 3. Concept and classification of race; ethnicity. 4. Space, society and cultural regions (language & religion). **Unit :II: Society, Demography and Ekistics** 5. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming and industrial society. 6. Human adaptation to the environment: Eskimo, Masai and Maori. 7. Population growth and distribution, composition; demographic transition. 8. Population–Resource regions (Ackerman). 9. Types and patterns of rural settlements. 10. Morphology of urban settlements.	• This paper provides knowledge about the human aspects of geography. • Through this paper students can easily understand the relationship between human beings and the natural world. • Also, various philosophical contents are there to provide the philosophical background of the subject. • Although there is no practical portion in this core course, sometimes various quantitative techniques, indexes, formulas are taught to depict, interpret and represent the human geographic data.

GEOACOR04T & P : CARTOGRAMS AND THEMATIC MAPPING (6 Credits) **THEORY - 4 Credits** 1. Concepts of rounding, scientific notation, logarithm and antilogarithm, natural and log scales. 2. Diagrammatic representation of data: Line, Bar, Isopleths. 3. Representation of area data: Choropleth, Dots and spheres, and proportional circles. 4. Preparation and interT & Ppretation of land use land cover maps. 5. Preparation and interpretation of socio-economic maps. 6. Bearing: Magnetic and true, whole-circle and reduced. 7. Basic concepts of surveying and survey equipment: Prismatic Compass, Dumpy Level, Theodolite. **PRACTICAL - 2 Credits** 1. Thematic maps: – Choropleth showing density of population. – Dots and Spheres diagram showing distribution of rural and urban population. – Proportional pie-diagrams representing economic data and land use data. 2. Traverse survey using prismatic compass, Profile survey using dumpy Level.	• This paper deals with theoretical knowledge regarding art and science of thematic map making. • Students can construct maps of various regions depicting various themes. • In the practical field there are a lot of opportunities to make thematic maps with the help of various geographical data based on primary or secondary surveys.
GEOACOR05T & P : CLIMATOLOGY (6 Credits) **THEORY - 4 Credits** **Unit I: Elements of the Atmosphere** 1. Nature, composition and layering of the atmosphere. 2. Insolation: controlling factors. Heat budget of the atmosphere. 3. Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences. 4. Greenhouse effect and importance of ozone layer. **Unit II: Atmospheric Phenomena & Climatic Classification** 5. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation. 6. Air mass: Typology, origin, characteristics and modification. 7. Fronts: warm and cold; frontogenesis and frontolysis. 8. Weather: stability and instability; barotropic and baroclinic conditions. 9. Circulation in the atmosphere: Planetary winds, jet stream, index cycle. 10. Tropical and mid-latitude cyclones. 11. Monsoon circulation and mechanism with reference to India.	• This paper provides the knowledge of the dynamics of earth's atmosphere and global climate. • Theoretical concept, explanation and classification of world climates are there based on various approaches and practical observation of climatologists. • Students can easily relate the causes and consequences of worldwide global climatic change. • Different weather-related techniques and tools are used in its practical portion like Hythergraph and Climograph to make this field more up to date with daily life. • They are also capable of interpreting and analysing the weather map of pre-monsoon, monsoon and

12. Climatic classification after Köppen, Thornthwaite (1955) and Oliver. **PRACTICAL - 2 Credits** 1. Interpretation of daily weather map of India (any two): Pre-Monsoon, Monsoon and Post-Monsoon. 2. Construction and interpretation of hythergraph climograph (G. Taylor). 3. Construction and interpretation of wind rose. 4. A Project File, consisting of one exercise from each of the following is to be prepared and submitted.	post-monsoon period.
GEOACOR06T : GEOGRAPHY OF INDIA (6 Credits) **Unit I: Geography of India** 1. Tectonic and stratigraphic provinces, physiographic divisions. 2. Climate, soil and vegetation: Characteristics and classification. 3. Population: Distribution, growth, structure and policy. 4. Tribes of India with special reference to Gaddi, Toda, Santal and Jarwa. 5. Agricultural regions. Green revolution and its consequences. 6. Mineral and power resources distribution and utilisation of iron ore, coal, petroleum and natural gas. 7. Industrial development: Automobile and information technology. 8. Regionalisation of India: Physiographic (R.L. Singh) and economic region (P. Sengupta). **Unit II: Geography of West Bengal** 9. Physical perspectives: Physiographic divisions, forest and water resources. 10. Resources: Agriculture, mining, and industry. 11. Population: Growth, distribution and human development. 12. Regional Issues: Darjeeling Hills and Sundarban.	• This paper intends to provide the students with the knowledge about the diversity of India. • Students can learn about the physical environment, locational pattern, population size, shape and characteristics, agricultural distribution with different methods applied in different regions, industrial location and their distribution, transportation systems with their regional distribution etc. about the country of India.
GEOACOR07T & P: STATISTICAL METHOD IN GEOGRAPHY (6 Credits) **THEORY - 4 Credits** **Unit I: Frequency Distribution and Sampling** 1. Importance and significance of statistics in Geography. 2. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio). 3. Sources of geographical data for statistical analysis. 4. Collection of data and formation of statistical tables. 5. Sampling: Need, types, and significance and methods of random sampling.	• Statistics play an important role in real life, especially in large industries, where data is computed in bulk. • It helps to collect, analyse and interpret the data. • Also, with the help of statistical graphs, charts and tables we can easily present the data. The types of statistics are categorised based on these features: Descriptive and inferential statistics. Based on the

6. Theoretical distribution: frequency, cumulative frequency, normal and probability. **Unit II: Numerical Data Analysis** 7. Central tendency: Mean, median, mode, partition values. 8. Measures of dispersion range: mean deviation, standard deviation, coefficient of variation. 9. Association and correlation: Rank correlation, product moment correlation. 10. Regression: Linear and nonlinear. 11. Time series analysis: Moving average. **PRACTICAL - 2 Credits** 1. Construction of data matrix with each row representing an areal unit (districts / blocks / mouzas/ towns) and corresponding columns of relevant attributes. 2. Based on the above, a frequency table, measures of central tendency and dispersion would be computed and interpreted using histogram and frequency curve. 3. From the data matrix a sample set (20%) would be drawn using random, systematic and stratified methods of sampling and locate the samples on a map with a short note on methods used. 4. Based on the sample set and using two relevant attributes, a scatter diagram and linear regression line would be plotted and residual from regression would be mapped with a short interpretation.	representation of data such as using Bar graphs, Pie charts or tables, we analyse and interpret it.
GEOACOR08T : REGIONAL PLANNING AND DEVELOPMENT (6 Credits) **Unit I: Regional Planning** 1. Concept of regions: Types of regions and their delineation. 2. Regional Planning: Types, principles, objectives, tools and techniques. 3. Need for regional planning in India, multi- level planning in India. 4. Metropolitan concept and urban agglomerations. **Unit II : Regional Development** 5. Concepts of growth and development, growth versus development. 6. Indicators of development: Economic, social & environmental. 7. Human development: Concept and measurement. 8. Theories and models for regional development: Cumulative causation (Myrdal). 9. Theories and models for regional development: Stages of development (Rostow), growth pole model (Perroux). 10. Concept and causes of underdevelopment. 11. Regional development in India: Disparity and diversity. 12. Need and measures for balanced development in India.	• From this core course we understand the importance of improving the distribution pattern of human activity and reducing the disparities between rich and poor regions of the country. • We also focus on region-wise environmental, social and economic issues.

GEOACOR09T : ECONOMIC GEOGRAPHY (6 Credits) **Unit I: Concepts** 1. Meaning and approaches to Economic Geography. 2. Concepts in Economic Geography: Goods and services, production, exchange and consumption. 3. Concept of economic man, theories of choices. 4. Economic distance and transport costs. **Unit II: Economic Activities** 5. Concept and classification of economic activities. 6. Factors affecting location of economic activity with special reference to agriculture (Von Thünen), and industry (Weber). 7. Primary activities: Agriculture, forestry, fishing and mining. 8. Secondary activities: Manufacturing (cotton textile, iron and steel), concept of manufacturing regions, special economic zones and technology parks. 9. Tertiary activities: Transport, trade and services. 10. Agricultural systems: Case studies of tea plantations in India and mixed farming in Europe. 11. Transnational sea-routes, railways and highways with reference to India. 12. International trade and economic blocs: WTO, GATT and BRICS: Evolution, structure and functions.	• Students taking this course study the nature and use of areas of the Earth's surface, relating and interpreting interactions of physical and cultural phenomena. • They conduct research on physical aspects of a region, including landforms, climates, soils, plants, and animals, and on the spatial implications of human activities within a given area, including social characteristics, economic activities, and political organisation, as well as researching interdependence between regions at scales ranging from local to global.
GEOACOR010T & P : ENVIRONMENTAL GEOGRAPHY (6 Credits) **THEORY - 4 Credits** **Unit : I Concepts** 1. Geographers' approach to environmental studies. 2. Concept of holistic environment and systems approach. 3. Ecosystem: Concept, structure and functions. 4. Space–time hierarchy of Environmental problems: Local, regional and global. **Unit : II Environmental problems and policies** 5. Environmental pollution and degradation: Land, water and air. 6. Urban environmental issues with special reference to waste management. 7. Environmental policies – National Environmental Policy, 2006, Earth Summits (Stockholm, Rio, Johannesburg). 8. Global initiatives for environmental management (special reference to Montreal Protocol, Kyoto Protocol, Paris Climate Summit). **PRACTICAL - 2 Credits**	• Environmental Geography combines these subjects to provide a much-needed capability to study and understand interactions between people, and the environments in which they live. • Environmental Geographers have expert knowledge and skills to research, analyse and communicate how the changing environment affects our lives. • Their ability to visualise geographical issues at different spatial scales, from global to local and to offer solutions to some of our most pressing environmental problems, ensures that graduates in Environmental Geography are highly sought after by a wide range of employers.

1. Preparation of questionnaire for perception survey on environmental problems. 2. Preparation of check-list for Environmental Impact Assessment of an urban / industrial project. 3. Interpretation of air quality using CPCB / WBPCB data.	
GEOACOR011T & P : FIELDWORK AND RESEARCH METHOD (6 Credits) **THEORY - 4 Credits** **Unit I: Research Methodology** 1. Research in Geography: Meaning, types and significance. 2. Literature review and formulation of research design. 3. Defining research problems, objectives and hypotheses. 4. Research materials and methods. 5. Techniques of writing scientific reports: Preparing notes, references, bibliography, abstract and keywords. **Unit II: Fieldwork** 6. Fieldwork in Geographical studies: Role and significance. Selection of study area and objectives.Pre-field academic preparations. Ethics of fieldwork. 7. Field techniques and tools: Observation (participant, non participant), questionnaires (open, closed, structured, non-structured), Interview. 8. Field techniques and tools: Landscape survey using transects and quadrants, constructing a sketch, photo and video recording. 9. Positioning and collection of samples. Preparation of inventory from field data. 10. Post-field tabulation, processing and analysis of quantitative and qualitative data. **PRACTICAL - 2 Credits** **Every student needs to participate in fieldwork and prepare a field report failing which he/she will not be evaluated for Core P11.**	• Fieldwork is an essential ingredient of geography because it provides a 'real-world' opportunity for students to develop and extend their geographical thinking; it adds value to classroom experiences. • Field studies are learning experiences outside of the classroom. • Field studies allow students to gather their own (primary) data, provide opportunities to extend classroom learning through direct observation and experience, and allow for scientific research through field experiments. • Field study trips can range from short walks in the schoolyard or nearby neighbourhood to vehicle excursions over some distance for several hours to a full day.
GEOACOR012T & P : REMOTE SENSING & GIS (6 Credits) **THEORY - 4 Credits** **Unit I: Remote Sensing** 1. Principles of Remote Sensing (RS): Types of RS satellites and sensors. 2. Sensor resolutions and their applications with reference to IRS and Landsat missions. 3. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data. 4. Principles of image correction and interpretation. Preparation of inventories of land	• Remote sensing helps people acquire information about the Earth. • It is thus essential to hazard assessment as well as the monitoring of land degradation and conservation.

use land cover (LULC) features from satellite images. **Unit II: GIS and Global Navigation Satellite System** 5. Concept of GIS and its applicability ; GIS data structures: types: spatial and non-spatial, raster and vector. 6. Principles of preparing attribute tables and data manipulation and overlay analysis. 7. Principles of GNSS positioning and waypoint collection. 8. Transferring waypoints to GIS. Area and length calculations from GNSS data. **PRACTICAL - 2 Credits** 1. Georeferencing of maps and images using Open Source software. 2. Preparation of FCC and identification of features using standard FCC and other band combinations. 3. Digitisation of features. Data attachment, overlay and preparation of annotated thematic maps (choropleth, pie chart and bar graphs).	• Remote sensing is also useful in oceanography as it tracks ocean circulation, temperature, and wave heights to understand ocean resources better. • Remote sensing technique has emerged as an effective tool for systematic survey, analysis, and better management of natural resources (land, soil, water, forests, mountains) along with the monitoring of desertification, flood, drought, and landform change. • Satellite remote sensors can serve as major sources of data on the effects of human behaviour within the biosphere, enabling the establishment of the spatial scale and extent of the direct interaction of humans with the global land cover.
GEOACOR013T : GEOGRAPHICAL THOUGHT (6 Credits) **Unit I: Nature of Pre Modern Geography** 1. Development of Geography: Contributions of Greek and Chinese geographers. 2. Impact of 'Dark Age' in Geography and Arab contributions. 3. Geography during the age of 'Discovery' and 'Exploration' (contributions of Columbus, Vasco da Gama, Magellan, Thomas Cook). 4. Transition from cosmography to scientific Geography (contributions of Bernard Varenius and Immanuel Kant). Dualism and Dichotomies (Idiographic vs. Nomothetic, Physical vs. Human, Regional vs. Systematic, Determinism vs. Possibilism,) **Unit II: Foundations of Modern Geography and Recent Trends** 5. Evolution of Geographical thoughts in Germany, France, Britain and the United States of America. 6. Contributions of Humboldt and Ritter. 7. Contributions of Richthofen, Hettner, Ratzel and Vidal deLaBlaché. 8. Trends of geography in the post-World War-II period: Quantitative Revolution, systems approach. 9. Evolution of Critical Geography: Behavioural, humanistic and radical. 10. Changing concept of time-space in geography in the 21st Century.	• Geographical Thought provides a clear and accessible introduction to the key ideas and figures in human geography. • It provides an essential introduction to the theories that have shaped the study of societies and space; opening with an exploration of the fundamental concepts of human geography in the nineteenth century academia, the range of theoretical perspectives that have emerged within human geography over the last century from feminist and Marxist concepts, through to post-colonial and non-representational theories. • "Geographic thought" encompasses the development of geographic knowledge in particular places, times, and contexts. Accordingly, it has traditionally been approached from a historical perspective.

	• A brief history of geographic thought portrays the evolving modes of perception in geographies.
GEOACOR014T & P : DISASTER MANAGEMENT (6 Credits) **THEORY - 4 Credits** **Unit I : Concepts** 1. Classification of hazards and disasters. 2. Approaches to hazard study: Risk perception and vulnerability assessment. Hazard paradigms. 3. Responses to hazards: Preparedness, trauma and aftermath. Resilience and capacity building. 4. Hazards mapping: Data and geospatial techniques (for hazards enlisted in Unit II and Core 14P) **Unit II: Hazard-specific Study with focus on India** 5. Earthquake: Factors, vulnerability, consequences and management. 6. Landslide: Factors, vulnerability, consequences and management. 7. Tropical Cyclone: Factors, vulnerability, consequences and management. 8. Riverbank erosion: Factors, vulnerability, consequences and management. 9. Radioactive fallout: Factors, vulnerability, consequences and management. **PRACTICAL - 2 Credits** An individual Project Report is to be prepared and submitted based on any one case study among the following disasters of West Bengal incorporating a preparedness plan 1. Thunderstorm 2. Landslide 3. Flood 4. Coastal / riverbank erosion 5. Fire 6. Industrial accident 7. Structural collapse	• Disaster is a serious disruption of the functioning of a community or society, which involves widespread human, material, economic or environmental impacts that exceed the ability of the affected community or society to cope using its own resources. • Disaster management is how we deal with the human, material, economic or environmental impacts of said disaster, it is the process of how we “prepare for, respond to and learn from the effects of major failures”. • Though often caused by nature, disasters can have human origins. • The combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disaster. • From this course students will learn how to prepare the society to face certain kind of disaster, what are the different mitigative measures for both different natural and man-made disaster, what kind of response of the affected people will be during the occurrence of a particular disaster and in what way we will be able to manage and recover the loss caused at the time of disaster.

GEOADSE01T : SOIL & BIOGEOGRAPHY (6 Credits) **Unit I: Soil Geography** 1. Factors of soil formation. Man as an active agent of soil transformation. 2. Soil profile. Origin and profile characteristics of Lateritic, Podzol and Chernozem soils. 3. Definition and significance of soil properties: Texture, structure and moisture. 4. Definition and significance of soil properties: pH, organic matter and NPK. 5. Soil erosion and degradation: Factors, processes and mitigation measures. 6. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification. **Unit II: Biogeography** 7. Concepts of biosphere, ecosystem, biome, ecotone, community, niche, succession and ecology. 8. Concepts of trophic structure, food chain and food web. Energy flows in ecosystems. 9. Geographical extent and characteristic features of: Tropical rainforest, Taiga and Grassland biomes. 10. Biogeochemical cycles with special reference to carbon dioxide and nitrogen. 11. Spatial distribution of world fauna. 12. Measures for conservation of biodiversity in India: Man and Biosphere Programme.	• From the content of this core course students will learn how to protect soils, plants and animals. One-quarter of all living things live in the soil for some part of their lives. • Soil is the foundation of basic ecosystem function. Soil filters our water, provides essential nutrients to our forests and crops, and helps regulate the Earth's temperature as well as many of the important greenhouse gases. • Biogeography has an important role in managing the world's biodiversity. • Students will gain knowledge about geographical distribution of organisms, and the information about how and when species may have evolved. • Fossils provide evidence of long-term evolutionary changes, documenting the past existence of species that are now extinct. • They will be able to understand and forecast changes to species distributions caused by environmental changes, both natural and anthropogenic, such as widespread vegetation clearance and shifts in climate.
GEOADSE02T: SETTLEMENT GEOGRAPHY (6 Credits) **Unit I Rural Settlement** 1. Scope and content of Settlement Geography; rural, urban and peri-urban areas. 2. Rural Settlement: Definition, nature and characteristics. 3. Morphology of rural settlements: site and situation, layout -internal and external. 4. Rural house types with reference to India, Social segregation in rural areas; Census categories of rural settlements. 5. Problems and policies related to rural infrastructure with reference to India.	• The importance of a spatial perspective for demographic research has received considerable attention over the past few decades. Population geography addresses demographic issues and population processes in an explicitly spatial manner, with a focus on the connection between people and places.

Unit II Urban Settlement 6. Urban Settlements :Census definition (Temporal) and categories in India. 7. Urban morphology: Classical models: Burgess, Homer Hoyt, Harris and Ullman Metropolitan concept. 8. City-region and Conurbation , Functional classification of cities: Harris, Nelson and McKenzie. 9. Aspects of urban places: Location, site and situation, Size and spacing of cities: the rank size rule, the law of the primate city. 10. Urban hierarchies : Central Place Theory; August Löch's theory of market centres.	• Population Geography is the study of the demography from a geographical perspective. • This course helps to understand the various facets pertaining to the spatial variation in the distribution of the human population across the Earth with reference to the physical, cultural and socio-economic environment.
GEOADSE03T : POPULATION GEOGRAPHY (6 Credits) **Unit I: Population Dynamics** 1. Development of Population Geography as a field of specialisation. Relation between population geography and demography. Sources of population data, their level of reliability and problems of mapping. 2. Population distribution: density and growth. Classical and modern theories in population distribution and growth, Demographic transition model. 3. World patterns determinants of population distribution and growth. Concept of optimum population. 4. Population distribution, density and growth profile in India. **Unit II: Population and Development** 5. Concepts of Age-Sex Composition; Rural and Urban Composition; Literacy and education. 6. Measurements of fertility and mortality. Concept of cohort and life table. 7. Population composition of India: Urbanisation and Occupational structure. 8. Migration: Causes and types. 9. National and international patterns of migration with reference to India. 10. Population and development: population-resource regions. Concept of human development index and its components. 11. Population policies in developed and less developed countries. India's population policies, population and environment, implications for the future. 12. Contemporary Issues – Ageing of Population; Declining Sex Ratio; Population and environment dichotomy, HIV/AIDS.	• The importance of a spatial perspective for demographic research has received considerable attention over the past few decades. • Population geography addresses demographic issues and population processes in an explicitly spatial manner, with a focus on the connection between people and places. • Population Geography is the study of the demography from a geographical perspective. • This course helps to understand the various facets pertaining to the spatial variation in the distribution of the human population across the Earth with reference to the physical, cultural and socio-economic environment.

GEOADSE04T: HYDROLOGY & OCEANOGRAPHY (6 Credits) **Unit-I : Hydrology** 1. Systems approach in hydrology. Global hydrological cycle: Its physical and biological role. 2. Run off: controlling factors. Infiltration & evapotranspiration. Run off cycle. 3. Drainage basin as a hydrological unit. Principles of water harvesting and watershed management. 4. Groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement. **Unit-II: Oceanography** 5. Major relief features of the ocean floor: characteristics and origin according to plate tectonics. 6. Physical and chemical properties of ocean water. 7. Water mass, T–S diagram. 8. Ocean temperature and salinity: Distribution and determinants. 9. Marine resources: Classification and sustainable utilisation. 10. Sea level change: Types and causes.	• Hydrology has evolved as a science in response to the need to understand the complex water systems of the Earth and help to solve water problems. • It is the study of the Earth's water, particularly of water on and under the ground before it reaches the ocean or before it evaporates into the air. • Hydrology provides guidance for undergoing proper planning and management of water resources. Calculates rainfall, surface runoff, and precipitation. • It determines the water balance for a particular region. It mitigates and predicts flood and drought risk in the region. • Oceanography applies chemistry, geology, meteorology, biology, and other branches of science to the study of the ocean. • From the knowledge obtained from oceanography, one can predict future changes in the temperature of the planet, and also to give warning of sea level changes, which could devastate low lying countries and coral reefs.
GEOADSE05T: SOCIAL GEOGRAPHY (6 Credits) **Unit I: Society, Identity and Crisis** 1. Social Geography: Concept, Origin, Nature and Scope. 2. Concept of Space, Social differentiation and stratification; social processes. 3. Social Categories: Caste, Class, Religion, Race and Gender and their Spatial distribution. 4. Basis of Social region formation; Evolution of social-cultural regions of India. 5. Peopling Process of India: Technology and Occupational Change; Migration. 6. Social groups, social behaviour and contemporary social environmental issues with special reference to India.	• In a nutshell, social geography focuses on the scientific study of the relationship of society and space (spatial components) as it studies relationships between people, natural resources and animal life, and their spatial distribution over geographical locations. • It is interested in answering the questions of how societal processes determine space and its

Unit II: Social Wellbeing and Planning **7. Concept of Social Well-being, Quality of Life, Gender and Social Well-being.** **8. Measures of Social Well-being: Healthcare, Education, Housing, Gender Disparity.** **9. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.** **10. Social Planning during the Five Year Plans in India.** **11. Social Policies in India: Education and Health.** **12. Social Impact Assessment (SIA): Concept and importance.**	**structures and how spatial conditions determine the existence of societies.**
GEOADSE06T: RESOURCE GEOGRAPHY (6 Credits) **Unit I: Resource and Development** **1. Natural Resources: Concept and classification.** **2. Approaches to Resource Utilization: Utilitarian,Conservation, Community based adaptation.** **3. Significance of Resources: Backbone of Economic growth and development.** **4. Pressure on resources. Appraisal and Conservation of Natural Resources.** **5. Problems of resource depletion—global scenario (forest, water, fossil fuels).** **6. Sustainable Resource Development.** **Unit II: Resource Conflict and Management** **7. Distribution, Utilisation, Problems and Management of Mineral Resources: Bauxite and Iron Ore.** **8. Distribution, Utilisation, Problems and Management of Energy Resources: Conventional and Non-Conventional.** **9. Contemporary Energy Crisis and Future Scenario.** **10. Limits to Growth and Sustainable Use of Resources; Concept of Resource sharing: Water.**	• **In this branch the emphasis is given on the study of resource, regional distribution of resource, factors associated with the production and exploration of resource.** • **We utilise resources to satisfy our wants. Many minerals like iron, copper, mica etc. are used in industries for manufacturing various goods. Minerals like coal and petroleum are used for the generation of electricity.** • **Students will be able to understand the nature of resources. From the basic characteristics of resources i.e., utility, limited availability and potentiality for depletion or conservation, students will realise the importance of resources for overall economic development of a country and this realisation will lead them towards a goal of sustainable development.**

COURSE OUTCOME OF GEOGRAPHY GENERAL (CBCS SYLLABUS - From July, 2018 to June, 2023)

CORE COURSE	COURSE SPECIFIC OUTCOME
GEOGCOR01: PHYSICAL GEOGRAPHY **Unit I: Geotectonics and Geomorphology** 1. Physical Geography – Definition and Scope, Components of Earth System. 2. Internal Structure of Earth based on Seismic Evidence, Plate Tectonics and its associated Features. 3. Influence of rocks on topography: Limestone and Granite 4. Evolution of landforms under fluvial process, Normal Cycle of Erosion ofDavis 5. Formation of erosional and depositional landforms by coastal and aeolian processes **Unit II: Climatology and Oceanography** 6. Insolation and Heat Balance. 7. Horizontal and Vertical distribution of temperature and pressure 8. Planetary wind system, characteristics of Monsoon and Tropical Cyclone 9. Climatic Classification: Köppen 10. Hydrological Cycle, Ocean Bottom Relief Features, ocean currents.	Knowing about the physical geography of Earth is important for every student by studying the planet because the natural processes of Earth affect the distribution of resources (from carbon dioxide in the air to freshwater on the surface to minerals deep underground) and the conditions of human settlement. Geography helps us to understand the basic physical systems that affect our everyday life. How water cycles and ocean currents work are all explained in Geography. These are important systems to monitor and predict in order to help lessen the impact of disasters. Land forms, soils, climate, water, natural vegetation and diverse flora and fauna are the elements of Physical Geography.
GEOGCOR02: HUMAN GEOGRAPHY **Unit I Population and Social Geography** 1. Factors of Growth and distribution of world population. Demographic Transition Theory. 2. World Population Composition: Age, Gender and Literacy. 3. Migration: Types, causes and consequences. 4. Space and Society: Cultural Regions; Race; Religion and Language. 5. Contemporary social issues: Illiteracy and Poverty. **Unit II Economic and Settlement Geography** 6. Sectors of the economy: primary, secondary, tertiary and quaternary 7. Types of agriculture: Intensive subsistence rice farming, Plantation agriculture (Tea and Coffee) 8. Location, problems and prospects of Indian industries —Cotton textile, Petroleum refining, Locomotive 9. Types and Patterns of Rural Settlements 10. Classification of Urban Settlements; Trends and Patterns of World Urbanization.	Human geography is a wide-ranging discipline that draws together many of the strands important for understanding the world today. It examines human societies and how they develop, their culture, economy and politics, all within the context of their environment. Students will acquire knowledge about the interrelationship between the physical environment and socio-cultural environment. They will be well-acquainted with the power of adaptation of human beings with different types of environment whether it is adverse or favourable. Gradual development of human society with time also provides information about growth and composition of population.

GEOGCOR03: GENERAL CARTOGRAPHY **1. Concept of map scale: Types and Application. Reading distances on a map.** **2. Map Projections: Criteria for choice of projections. Attributes and properties of: Zenithal Gnomonic Polar Case, Zenithal Stereographic Polar Case, Cylindrical Equal Area, Mercator's Projection, Bonne's Projection. Concept of UTM projection** **6. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps.** **5. Representation of Data – Symbols, Dots, Choropleth, Isopleth and Flow Diagrams, Interpretation of Thematic Maps.**	**Cartography is a very important part of Geography and most relevant in preparation of maps. Without maps, we would be "spatially blind." Knowledge about spatial relations and location of objects are most important to learn about space, to act in space, to be aware of what is where and what is around us, or simply to be able to make good decisions.**
GEOGCOR04: ENVIRONMENTAL GEOGRAPHY **Concepts** **1. Environmental Geography: Concepts and Approaches** **2. Human-Environment Relationship in equatorial, desert, mountain and coastal regions** **3. Concept of holistic environment and system approach** **4. Ecosystem: Concept, structure and functions** **Environmental problems and policies** **5. Environmental Problems and Management: Air Pollution; Water pollution Biodiversity Loss; Solid and Liquid Waste.** **6. Environmental problems and management: Desertification and soil erosion** **7. Environmental Programmes and Policies: Developed Countries; Developing Countries.** **8. New Environmental Policy of India.**	**Environmental geography represents a critically important set of analytical tools for assessing the impact of human presence on the environment by measuring the result of human activity on natural landforms and cycles.** **This course helps to understand the current environmental problems through the knowledge of physical, chemical, biological, and social processes. It provides the skills necessary to obtain solutions to environmental problems.**
GEOGDSE01: SOIL & BIOGEOGRAPHY **Unit I: Soil Geography** **1. Factors of soil formation.** **2. Soil profile. Origin and profile characteristics of Lateritic and Chernozem soils.** **3. Definition and significance of soil properties: Texture, structure and moisture, pH and organic matter.** **4. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification.** **Unit II: Biogeography**	**Soils provide anchorage for roots, hold water and nutrients. Soils are home of numerous microorganisms that fix nitrogen and decompose organic matter and also earthworms and termites. We build on soil as well as with it and in it. Soil plays a vital role in the Earth's ecosystem.** **Biogeography is important as a branch of geography that sheds light on the natural habitats around the world. It is also essential in understanding why species are in their**

5. Concepts of biosphere, ecosystem, biome, ecotone, community, niche and succession. **6. Concepts of food chain and food web. Energy flows in ecosystems.** **7. Geographical extent and characteristic features of: Tropical rainforest and Grassland biomes.** **8. Biogeochemical cycles with special reference to carbon dioxide and nitrogen.**	**present locations and in protecting the world's natural habitats.**
GEOGDSE02: REGIONAL DEVELOPMENT **Concepts of Regions and Regional Planning** **1. Definition of Region. Types and Need of Regional planning.** **2. Choice of a Region for Planning: Characteristics of an Ideal Planning Region; Delineation of Planning Region.** **3. Regionalization of India for Planning (Agro Ecological Zones).** **4. Strategies/Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context.** **5. Problem Regions and Regional Planning: Backward Regions and Special Area Development Plans in India.** **Regional Development** **6. Changing concept of development and underdevelopment.** **7. Indicators of development: Economic, social and environmental. Concept of human development.** **8. Development and regional disparities in India since Independence: Disparities in agricultural development and industrial development.** **9. Development and regional disparities in India since independence : Disparities in human resource development in terms of education and health.**	**Harmonised regional development is a very important target in economic policy-making. It is important to realize a good balance between regions to secure political stability and to stimulate the active participation of the people.** **Regional development is the provision of aid and other assistance to regions which are less economically developed. Regional development may be domestic or international in nature.**
GEOGDSE03: DISASTER MANAGEMENT **Unit I: Concepts** **1. Hazards, risk, vulnerability and disasters: definition and concepts.** **2. Approaches to hazard study: risk perception and vulnerability assessment. Hazard paradigms.** **3. Response and mitigation to disasters: mitigation and preparedness, NDMA and NIDM; indigenous knowledge and community-based disaster management; do's and don'ts during disasters.** **Unit II: Hazard-specific Study with focus on India**	**Disaster management efforts aim to reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to the victims of a disaster, and achieve a rapid and effective recovery. It is crucial that hospitals remain safe and functional during and after disasters.** **Introducing Disaster Management in the curriculum of schools, colleges and universities will make the educated youth address these crises with their knowledge,**

4. Disasters in india: (a) causes, impact, distribution and mapping: flood, drought and cyclone. **5. Disasters in india: (b) causes, impact, distribution and mapping: earthquake, tsunami and landslide.** **6. Human induced disasters: causes, impact, distribution and mapping: radioactive fallout.**	**self-confidence, and survival skills in lesser times. Awareness among the student community will help to build a better, stronger and resilient nation.**
<u>GEOGDSE04: FIELD WORK & PROJECT REPORT</u> **Project work is compulsory for completing B.Sc Course in Geography. Project Work is intended to provide an opportunity to the candidate to field test the learning.** **The Project report should be based on field work on some specific topics as suggested by the Department.** **Each student will prepare an individual report based on primary and secondary data collected during field work.**	**Field reports facilitate the development of data collection techniques and observation skills and they help you to understand how theory applies to real world situations.** **Field work enables students and researchers to examine the way scientific theories interact with real life. Field work is important in both the social and natural sciences. Social sciences, such as economics or history, focus on people, culture, and society.** **Project reports are valuable tools to both project teams and stakeholders. It provides several benefits. Through these reports, all those involved are able to track the current progress of the project and compare it against the original plan. They can identify risks early on, and take corrective action.**