DEPARTMENT OF GEOGRAPHY
HAZI A. K. KHAN COLLEGE
P. O+P.S- Hariharpara, Dist. - Murshidabad, Pin- 742166
E-mail Id- geographydepartmenthakkc@gmail.com

COURSE OUTCOMES
OF
B.A/B.SC. HONOURS COURSE IN GEOGRAPHY
UNDER CBCS

The course outcomes of the different papers offered are presented below. After completion of the course the student will be able to:

SEMESTER-I		
Course Code	**Course Title**	**Course Outcomes**
GEO/H/CC/T/01 (Theory)	**Geotectonics and Geomorphology**	**CO1:** Understand fundamental knowledge in Geotectonics and Geomorphology **CO2:** Obtain adequate knowledge on the internal structure, tectonic and structural evolution of earth, concept of Isostasy. **CO3:** Acquire comprehensive knowledge of plate tectonics, folds and faults classification, Earthquakes and Volcanoes. **CO4:** Understand the dynamic nature of the earth surface processes, landforms and their evolution **CO5:** Build the idea about models of landscape evolution.
GEO/H/CC/T/02 (Theory)	**Cartographic Techniques and Geological Map Study**	**CO1:** Understand fundamental knowledge in Cartography. **CO2:** Obtain adequate knowledge about different types and components of maps. **CO3:** Comprehend the concept and types of scales. **CO4:** Build the idea about Coordinate Systems and Concept of Geoid and Spheroid. **CO5:** Acquire comprehensive knowledge of Map Projections. **CO6:** Develop an idea about Topographical Maps and its Reference Scheme (SOI: Old and Open series). **CO7:** Identify different types of Rocks and Minerals based on their characteristics. **CO8:** Get a clear concept about Geological Maps.

GEO/H/CC/P/02 (Practical)	**Cartographic Techniques and Geological Map Study**	**CO1:** Students can construct and represent different types of scales. **CO2:** Acquire knowledge about different procedures of drawing map projections. **CO3:** Student will be able to construct and interpret of Relief Profiles, Relative Relief Map, Average Slope Map and Stream Ordering. **CO4:** Identify various physical and cultural features from Topo sheet and can establish relationship between them through Transect chart. **CO5:** Students can draw Geological Section and also interpret the Geological Map.
SEMESTER-II		
GEO/H/CC/T/03 (Theory)	**Human Geography**	**CO1:** Through this lesson student will understand the concept and contemporary relevance of Human Geography. **CO2:** Acquire knowledge about the major themes of Human Geography. **CO3:** The lesson will enable to understand the evolution of humans and human adaptation to environment. **CO4:** Acquire knowledge about Ethnicity and major Racial Groups of the world. **CO5:** Develop an idea about space, society and Cultural Regions (Language and Religion). **CO6:** Build concrete ideas about Culture, Cultural Diffusion, Community, Society and Cultural Realms. **CO7:** Acquire knowledge about evolution of Humans Society from Hunting and Gathering to Urban Society. **CO8:** Acquire knowledge of population growth, distribution and composition with spatio-temporal context. **CO9:** Develop the idea of Demographic Transition Model. **CO10:** Gain knowledge of Population resource region (Ackerman) **CO11:** Student will learn about Population and Environment Relations with special reference to Development–Environment Conflict.

		CO12: Understand the Social Morphology and Rural House Types in India. **CO13:** Students will know about Types and Patterns of Rural Settlements. **CO14:** Acquire knowledge about functional classification of urban settlement. **CO15:** Understand the patterns and trends of World Urbanization.
GEO/H/CC/T/04 (Theory)	**Cartograms, Survey and Thematic Mapping**	**CO1:** Learn the basic concepts of Cartograms and Thematic Maps. **CO2:** Understand the concepts and utility of Isopleth and Choropleth. **CO3:** Enhanced understanding of the concept and utility of Climograph, Hythergraph and Ergograph. **CO4:** Understand, prepare and interpret of Demographic Charts and Diagrams (Age-Sex Pyramid). **CO5:** Build the ideas about Bearing. **CO6:** Knowledge in basic concepts and different types of surveying. **CO7:** Develop an idea of different survey equipment and its uses. **CO8:** Understand and interpret of Landuse and landcover maps.
GEO/H/CC/P/04 (Practical)	**Cartograms, Survey and Thematic Mapping**	**CO1:** Represent of data by using different types of diagram. **CO2:** Develop their ability and skills in thematic mapping for represent Geographical data. **CO3:** Able to prepare the Traverses and determine height and distances of object by using Prismatic Compass, Dumpy level and Transit Theodolite.
SEMESTER-III		
GEO/H/CC/T/05 (Theory)	**Climatology**	**CO1:** Understand the Nature and Composition of the Atmosphere. **CO2:** Can represent and explain different atmospheric layers.

		CO3: Learn the different controlling factors of Insolation and also get idea about Heat Budget of the atmosphere. **CO4:** Acquire comprehensive knowledge of temperature distribution. **CO5:** Develop the knowledge about types, causes and consequences of Inversion of Temperature. **CO6:** Understand the importance of the ozone layer and effect of green- house gases over climate. **CO7:** Obtain adequate knowledge on the Processes and Forms of Condensation. **CO8:** Understand the forms of precipitation and their mechanism. **CO9:** Gain knowledge about Typology, Origin, Characteristics and Modification of Air mass. **CO10:** Obtain knowledge about the types of Fronts and its Mechanism. **CO11:** Build concrete ideas about Weather Stability, Instability, Barotropic and Baroclinic Conditions. **CO12:** Have better understanding of the atmospheric circulation, Planetary winds, jet steam, different types of cyclones and their origin. **CO13:** Acquire knowledge of Monsoon Circulation and its mechanism with reference to India. **CO14:** Students can identify the world climatic zones based on Climatic Classification after Köppen and Thornthwaite.
GEO/H/CC/T/06 (Theory)	**Statistical Methods in Geography**	**CO1:** At the end of the course students will know the importance and significance of statistics in geography. **CO2:** Student will be acquainted with different types of data and their importance. **CO3:** Expertise in different source based data collection, analysis and formation of statistical tables. **CO4:** Student will be able to apply different types of sampling method in data collection and also get idea about Need, Types, and Significance of Sampling. **CO5:** Gain knowledge about Frequency, Cumulative Frequency, Probability and Normal Distribution.

		CO6: Student will know about central tendency, partition values, dispersion, correlation and association. **CO7:** Have better knowledge about Linear Regression and Time Series Analysis.
GEO/H/CC/P/06 (Practical)	**Statistical Methods in Geography**	**CO1:** Prepare Data Matrix with Row and Columns of relevant attributes. **CO2**: Build capacity to compute and interpret of Central Tendency and Dispersion based on frequency distribution table. **CO3:** Develop their ability and skills in graphically present of data. **CO4:** Able to draw scatter diagram with regression line. **CO5:** Compute and interpret the results of Regression and Residual from Regression.
GEO/H/CC/T/07 (Theory)	**Geography of India**	**CO1:** Understand the geological, physiographic, socio-cultural and economic divisions of India. **CO2:** Recognise the various features of the soil, climate and vegetation of our country. **CO3:** Analyze the population composition of India. **CO4:** Interpret the features of agricultural regions in India and also recognise the concept of green revolution. **CO5:** Build the concept about various natural resources available in this country and assess the scenario of industrial development. **CO6:** Outline the physical features of West Bengal. **CO7:** Understand the characteristics of Darjeeling, Sundarban, Nadia & Murshidabad districts.
GEO/H/SEC/P/01/A (Practical)	**Computer Basics and Computer Applications**	**CO1:** Gather the concept about numbering system. **CO2:** Apply the knowledge of computer technology to solve various problems. **CO3:** Develop their ability and skills in data management, data computation, data analysis and cartographic presentation. **CO4:** Acquire internet surfing skills and enhance their ability to gain knowledge from the digital world.

GEO/H/SEC/P/01/B (Practical)	**Remote Sensing**	**CO1:** Explain the basic concepts and principles of remote sensing, including the classification of satellites and sensors. **CO2:** Students will be able to apply different sensor resolutions, such as spatial, spectral, temporal and radiometric, to various remote sensing applications, with reference to IRS and Landsat missions. **CO3:** Able to prepare false colour composites from IRS LISS-III, Landsat TM and Landsat ETM data, and understand the principles of image rectification and enhancement techniques. **CO4:** Students will be able to interpret satellite images using visual and digital methods, and extract features of interest based on their spectral, spatial, temporal and contextual characteristics. Also able to prepare inventories of landuse /landcover features from satellite images and analyze the patterns and processes of landuse/landcover change using remote sensing data.
SEMESTER-IV		
GEO/H/CC/T/08 (Theory)	**Regional Planning and Development**	**CO1:** Build the concepts of region, its types and delineation techniques. **CO2:** Understand the planning types, principles, techniques of regional planning. **CO3:** Realize the needs of regional planning at different levels. **CO4:** Analyze the concept of regionalisation like agro-ecological zones. **CO5:** Understand the meaning of development and regional development. **CO6:** Develop the idea of various models like Growth pole (Perroux), growth foci (R.P. Mishra), core-periphery models (Hirschman, Rostow, Friedman), cumulative causation (Myrdal) etc. **CO7:** Formulate the idea of developed and under-developed economy and the causes of regional disparities in India. **CO8:** Understand the concept of Human development, its indicators and learn to calculate the measurement of human development.
GEO/H/CC/T/09 (Theory)	**Economic Geography**	**CO1:** Remember the meaning, concepts and approaches of Economic geography.

		CO2: Understand the various factors of economic activities and transport costs. **CO3:** Build the concept and classification of economic activities like agriculture, fishing, mining, manufacturing industries etc. **CO4:** Describe the agricultural theory of Von Thunen and Industrial location theory by Weber. **CO5:** Develop the concepts of Technology parks and Special Economic Zones (SPZ). **CO6:** Assess the features of Cotton textile industries of India and U.S.A.; Iron & Steel industries of India and Japan. **CO7:** Remember the various tertiary activities like transport (roadways, railways, waterways & airways etc.), trade and services like Banking, Post etc. and also learn about transitional sea-routes. **CO8:** Build the ideas about the tea plantation of India and Mixed farming in Europe.
GEO/H/CC/T/10 (Theory)	**Environmental Geography**	**CO1:** Understand the concept, scope and perception of Environmental Geography also realize the idea of holistic environment. **CO2:** Learn about Environmental Impact Assessment (EIA). **CO3:** Know about the concept, structure and functions of ecosystem. **CO4:** Assess the various environmental issues like pollution (land, water, air etc.), degradation and other issues related to agriculture, waste management etc. **CO5:** Outline the programmes and policies taken during Earth Summit (1992), Montreal and Kyoto protocol etc.
GEO/H/CC/P/10 (Practical)	**Environmental Geography**	**CO1:** Prepare questionnaires for perception survey on environmental problems. **CO2:** Construct environmental maps by applying acquired knowledge. **CO3:** Test pH and NPK by using soil testing kits and interpret it. **CO4:** Evaluate the CPCB and WBPCB data of Air Quality Index (AQI).

GEO/H/SEC/P/02/A (Practical)	**Advance Spatial Statistical Techniques**	**CO1:** Differentiate between spatial and non-spatial data and understand their significance in geographical analysis. Explain the concept of Nearest Neighbour Analysis and its applications in determining spatial patterns. **CO2:** Define and understand the concept of probability and its role in geographical analysis. Explain the characteristics and applications of the Normal Distribution in geographical data. Apply the concept of skewness using Pearson's method to analyze asymmetry in geographic datasets. Utilize probability and distribution concepts to address real-world geographic scenarios and make informed decisions. **CO3:** Develop appropriate sampling plans for both spatial and non-spatial datasets considering their unique characteristics. Understand the concept of sampling distributions and its importance in making statistical inferences from samples. Compute sampling estimates for means and proportions using both large and small sample sizes. Apply hypothesis tests involving means and proportions to draw conclusions from sampled geographic data. **CO4:** Differentiate between rank order correlation and product moment correlation and apply them to analyze relationships in geographic data. Understand linear regression analysis and its role in predicting and modeling spatial phenomena. Interpret residuals from regression analysis to assess the goodness-of-fit of a model. **CO5:** Apply the Least Squares method to analyze and predict trends in time series data within a geographical context. Utilize the Moving Mean method to identify and interpret short-term variations in time series data. Understand the various components of a time series, including trend, seasonality, and noise, and their significance in geographic analysis. Analyze and interpret time series data from geographic sources to extract meaningful temporal patterns and inform decision-making. **CO6:** Learn to handle statistical software.
GEO/H/SEC/P/02/B (Practical)	**Field Work**	**CO1:** Construct link between bookish knowledge and reality by participating in Field Survey. **CO2:** Enhance their computer skills. **CO3:** Develop a clear concept about the socio-economic scenario of different regions.

		CO4: Acquire knowledge, skills and expertise to identify geographical issues **CO5:** Achieve skills and expertise to use various survey techniques and instruments **CO6:** Expertise in field-based data collection, analysis and presentation **CO7:** prepare field report **CO8:** Build capacity to interact with people of diverse culture
SEMESTER-V		
GEO/H/CC/T/11 (Theory)	**Research Methodology and Field Work**	**CO1:** Students will be able to understand the nature, types, significance of geographical research and literature review, the formulation of research design and hypotheses, the ethical issues involved in research and fieldwork. **CO2:** Develop an idea about research problems, objectives, materials and methods. **CO3:** They will be able to present and communicate the results of their research and field work in a clear and concise manner using tables, graphs, charts, maps, diagrams, etc. and write a well-structured research report and field report following the academic standards and conventions. **CO4:** Have expertise in identification of area of study, methodology, quantitative and quantitative analysis, and conclusions to be drawn about the area. **CO5:** Make use of proper tools and surveying methods for measurement in context of collection and processing of data.
GEO/H/CC/P/11 (Practical)	**Research Methodology and Field Work**	**CO1:** Acquire knowledge, skills and expertise to identify geographical issues. **CO2:** Achieve skills and expertise to use various survey techniques and instruments. **CO3:** Expertise in field-based data collection, analysis and presentation. **CO4:** Prepare a report based on field data. **CO5:** Build capacity to interact with people of diverse culture.

GEO/H/CC/T/12 (Theory)	**Remote Sensing and GIS**	**CO1:** Have knowledge of the principles of remote sensing and image referencing schemes. **CO2:** Learn the basic concepts and terminology related to remote sensing and GIS, such as the different types of sensors, Platforms, resolutions, coordinate systems, projections, etc. This will help students to understand how remote sensing and GIS data are acquired, represented, and transformed. **CO3:** Acquire knowledge of different missions & their utilities. **CO4:** Students will be able to identify the types and characteristics of aerial photographs. **CO5:** Students will be able to understand the geometry and scale of aerial photographs, and measure distances, heights, areas, angles, and directions on them using various methods and instruments. **CO6:** They will have broad knowledge about photo interpretation keys and FCC. Also understand their applications. **CO7:** They will understand and explain principles of Image interpretation. **CO8:** After this course students will obtain knowledge of GIS, its components and data structures. **CO9:** Able to master the skills of data conversion and manipulation in GIS, such as working with vector and raster data, attribute data and overlay analysis. This will enable students to perform various spatial operations and analyses on GIS data. **CO10:** Students will understand and explain principles of preparing attributes tables and GNSS positioning. **CO11:** Learn how to collect waypoint and transferring of waypoints to GIS.
GEO/H/CC/P/12 (Practical)	**Remote Sensing and GIS**	**CO1:** Student will be able to perform Geo-referencing and digitization of features. **CO2:** Achieve skills and expertise to use Q-GIS software for Data attachment overlay and thematic map. **CO3:** Students will be able to prepare FCC and LULC maps using GIS Software.
GEO/H/DSE/T/01/A (Theory)	**Urban Geography**	**CO1:** Understand the nature, scope, approaches and recent trends in Urban Geography.

		CO2: Analyze the theories of urban morphology, evolution, growth and hierarchy of urban settlements. **CO3:** Learn the technique to plot Rank-Size Rule and establish a hierarchy of urban settlements. **CO4:** Understand the patterns of urbanization in developed and developing countries. **CO5:** Gain knowledge of Ecological process of urban growth. **CO6:** Acquire knowledge of City Region and Law of the Primate City. **CO7:** Understand the patterns and trends of urbanization in India. **CO8:** Know Land use and contemporary problems of Delhi and Kolkata. **CO9:** Obtain adequate knowledge on Urban renewal programme – JNNURM.
GEO/H/DSE/T/01/B (Theory)	**Cultural and Settlement Geography**	**CO1:** Understand the scope, content and development of Cultural and Settlement Geography. **CO2:** Acquire clear knowledge on cultural hearth, realm, Cultural diffusion, cultural segregation, cultural diversity and technology. **CO3:** Learn about the various races and racial groups of the world. **CO4:** Understand the nature and morphology of rural and urban settlements. **CO5:** Learn the census definition and categories of urban settlements. **CO6:** Analyze the urban morphology models of Burges, Homer Hoyt, Harris and Ullman. **CO7:** Build concrete ideas about rural house types with reference to India and functional classification of cities by Harris, Nelson and McKenzie.
GEO/H/DSE/T/02/A (Theory)	**Population Geography**	**CO1:** Learn the role of Demography and Population Geography as a distinct fields of Geography. **CO2:** Understand population dynamics, nature of population growth, migration, optimum population and World patterns determinants of population distribution.

		CO3: Gain knowledge about the Human Development Index and population-resource regions. **CO4:** The students can explain theories related to population and migration. **CO5:** Build concrete ideas about Fertility and Mortality. **CO6:** Know about Population Composition and Characteristics. **CO7:** Acquire knowledge of population policies adopted in India and China with Contemporary Issues in Population.
GEO/H/DSE/T/02/B (Theory)	**Social Geography**	**CO1:** Understand the nature, scope and content of Social Geography. **CO2:** The students will be able to analyze the spatial patterns and processes of social groups and social behavior in different contexts and scales. **CO3:** Understand fundamental knowledge of the Social Structure and Process. **CO4:** The students will be able to identify and compare the elements of social structure such as caste, class, religion, and race, and their implications in social inequality and diversity. **CO5:** Know about Social Stratification in India. **CO6:** Able to evaluate the contemporary social-environmental issues with references to India. **CO7:** Students can understand indicators of social well-being and quality of life. **CO8:** Able to recognize the social pathology of crime and violence, and their spatial distribution and variation. **CO9:** Acquire knowledge about Social Impact Assessment (SIA). **CO10:** The students will be able to critically review the social policies in India, such as Sarva Shiksha Abhiyan (SSA) and National Rural Health Mission (NRHM) and their effectiveness and challenges.
SEMESTER-VI		
GEO/H/CC/T/13 (Theory)	**Evolution of Geographical Thoughts**	**CO1:** The students will be able to trace the historical development of geography as a discipline and appreciate

		the contributions of various geographers from different regions and periods. **CO2:** They will have comprehensive knowledge about Transition from Cosmography to Scientific Geography, dualism and dichotomies. **CO3:** Understand the philosophical foundations of modern geography and the emergence of various schools of geographical thought in different countries**.** **CO4:** Students will be able to critically examine the trends and challenges of geography in the post World War-II period and the influence of quantitative revolution, behaviouralism, systems approach, radicalism and feminism on geographical inquiry. **CO5:** Able to explore the evolution of geographical thought in India and its relation to the global context. **CO6:** Understand the changing concept of space in Geography and Geography in the 21st Century.
GEO/H/CC/T/14 (Theory)	**Disaster Management**	**CO1:** Classify hazards and disasters into different types and categories based on their origin, frequency, intensity, duration, and impact. Students will also be able to explain the difference between hazards and disasters, and how they relate to risk and vulnerability. **CO2:** Apply approaches to hazard study such as risk perception and vulnerability assessment, which are methods of identifying and measuring the potential harm and exposure of people and places to hazards. Students will also be able to compare and contrast different hazard paradigms. **CO3:** Analyze responses to hazards and disasters such as preparedness, trauma, aftermath, resilience and capacity building. Also able to evaluate the effectiveness of various strategies and actions taken before, during, and after a hazard or disaster occurs to reduce its impact and enhance coping abilities. **CO4:** Perform hazards mapping using data and techniques such as remote sensing, geographic information systems (GIS), spatial analysis and statistical methods. **CO5:** Examine specific types of hazards and disasters such as earthquake, landslide, cyclone, and fire. Students will be able to describe the factors that influence their occurrence, vulnerability, consequences, and management. Also be able to apply the concepts and methods learned in the course to analyze case studies of

		these hazards and disasters in different contexts and regions.
GEO/H/CC/P/14 (Practical)	**Disaster Management**	**CO1:** Design and propose a disaster preparedness plan for the selected area that addresses the specific hazards, vulnerabilities and capacities of the community and stakeholders. **CO2:** Understand processes and impact of disaster. **CO3:** Understand both the natural and man-made disaster and human negligence in context of environment. **CO4:** Write a field work based report on Disaster Management to minimize the disaster risk.
GEO/H/DSE/T/03/A (Theory)	**Fluvial Geomorphology**	**CO1:** By the end of the course, students will be able to explain the scope and significance of fluvial geomorphology and the concept of fluvial hydrosystem, and apply the geographer's approach to study rivers. **CO2:** Identify the components and controlling factors of run off and describe the run off cycle and its implications for fluvial processes. **CO3:** Classify different types of channel patterns and analyze the factors that influence their formation and evolution. **CO4:** Students will be able to recognize the drainage basin as a hydrological unit and evaluate its role in fluvial dynamics. **CO5:** They will be able to measure and interpret the linear, areal and altitudinal properties of drainage basins and apply the Horton's stream laws and hypsometric curve to characterize basin morphology. **CO6:** Describe and compare various fluvial landforms such as terraces, alluvial fans, badlands and accretion topography, and understand their formation mechanisms and environmental significance. **CO7:** Able to assess the causes and consequences of river bank erosion and propose management strategies. Also understand their impact on land use. **CO8:** Students will be able to demonstrate the principles and significance of integrated watershed management, and apply them to real-world case studies.

GEO/H/DSE/T/03/B (Theory)	**Resource Geography**	**CO1:** Obtain adequate knowledge on Natural Resources. **CO2:** Students will be able to compare and contrast different approaches to resource utilization, such as utilitarian, conservational and community based adaptive. Also evaluate their strengths and weaknesses. **CO3:** Able to justify the need and significance of conservation of natural resources. **CO4:** Students can analyze the problems of resource depletion in the global context and assess the impacts of deforestation, water scarcity and fossil fuel consumption on the environment and society. **CO5:** Acquire comprehensive knowledge of distribution, utilization, problems and management of metallic and Non-Metallic resources, such as iron ore, bauxite, Mica and Gypsum and understand their economic and strategic importance. **CO6:** Student can identify the problems and management of energy resources, both conventional and non-conventional. Explain the contemporary energy crisis and future scenario, and examine the challenges and opportunities for developing alternative energy sources. **CO7:** By the end of the course, students will be able to comprehend the concept of limits to growth and sustainable use of resources and critically reflect on their own consumption patterns and lifestyle choices.
GEO/H/DSE/T/04/A (Theory)	**Soil and Bio Geography**	**CO1:** Learn in details about the factors, processes and formation of soil and the role of human activities in soil transformation. **CO2:** Develop the concept of origin of laterite, podzol and chernozem soil and their profile characteristics. compare their distribution and suitability for agriculture. **CO3:** students can define and measure the soil properties of texture, structure, moisture, pH, organic matter and NPK. Explain their significance for soil quality and productivity. **CO4:** Identify the factors, processes and mitigation measures of soil erosion and degradation. assess their impacts on soil health and environment. **CO5:** Students will be able to apply the principles of soil classification based on genetic and USDA systems and understand the concept of land capability and its classification for land use planning.

		CO6: Develop concepts of ecology, biosphere, ecosystem, biome (Tropical Rain forest, Taiga, Grassland etc.), ecotone, community etc. in detail**.** **CO7:** Understand the concept of trophic structure, food chain and food web, and analyze the energy flow in ecosystems and its efficiency. **CO8:** Students will be able to describe the geographical extent and characteristic features of tropical rain forest, taiga and grassland biomes and compare their biodiversity and ecosystem services. **CO9:** Explain the bio-geochemical cycles with special reference to carbon dioxide and nitrogen and evaluate their role in maintaining ecological balance. **CO10:** Examine the causes, consequences and management of deforestation, and understand its implications for climate change and human welfare. **CO11:** By the end of the course, students will be able to define bio-diversity, its types, threats and conservation measures, and recognize its importance for ecological stability and human development.
GEO/H/DSE/T/04/B (Theory)	**Agricultural Geography**	**CO1:** Understand the progress of agricultural geography with reference to allied disciplines, and apply different approaches to study agricultural geography. **CO2:** Students will be able to trace the origin and dispersal of agriculture, and evaluate its role on human society and culture. **CO3:** Identify the factors affecting agriculture, such as physical, economic, social and political factors. classify the world agricultural systems based on their characteristics and regions. **CO4:** Able to locate and describe the major agricultural types, such as intensive subsistence, extensive commercial and plantation agriculture. compare their advantages and disadvantages for different environments and markets. **CO5:** Understand the concept of cropping pattern, crop combination, gross and net cropped area, crop rotation, and their implications for agricultural efficiency and diversity. **CO6:** Learn the agricultural model of Von Thunen and its relevance at present day.

		CO7: Measure agricultural productivity and also learn about the factors responsible for yield**.** **CO8:** Evaluate the role of irrigation in agriculture with special reference to India. **CO9:** Analyze different problems of agriculture in various South Asian countries. **CO10:** Students will be able to describe the world patterns of agricultural production and food security, and understand the factors influencing them. **CO11:** They will be able to conduct land use survey and land classification using USDA system, and interpret the results for land use planning and management. **CO12:** By the end of the course, students will be able to explain the impact of globalization on agriculture with special reference to India, and explore its opportunities and threats for farmers, consumers, and environment.

COURSE OUTCOMES
OF
B.A/B.SC. HONOURS GENERIC ELECTIVE (GE) COURSE IN GEOGRAPHY
UNDER CBCS

SEMESTER-I		
Course Code	**Course Title**	**Course Outcomes**
GEO/H/GE/T/01/A (Theory)	**Disaster Management**	By the end of this course, the students will be able to: **CO1:** Define and classify different types of hazards and disasters, and explain their causes, impacts, distribution and mapping. **CO2:** Assess the risk and vulnerability of various regions and communities to natural and man-made disasters in India, and suggest appropriate prevention and mitigation measures. **CO3:** Identify and analyze the institutional, legal, social and cultural aspects of disaster response and management in India, and evaluate the role of various stakeholders such as NDMA, NIDM, NGOs and local communities. **CO4:** Apply the concepts and principles of disaster management to design and implement effective disaster preparedness and recovery plans, and demonstrate the do's and don'ts during and post disasters. **CO5:** Appreciate the importance of indigenous knowledge and community-based disaster management, and integrate them with scientific and technological approaches for sustainable disaster risk reduction.
GEO/H/GE/T/01/B (Theory)	**Geography of Tourism**	By the end of this course, the students will be able to: **CO1:** Understand and explain the scope and nature of tourism, recreation and leisure, and their inter-relations with geographical parameters and issues. **CO2:** Distinguish and compare different types of tourism, such as nature, cultural, medical and pilgrimage, and their characteristics, motivations and impacts. **CO3:** Identify and evaluate the recent trends of tourism at international, regional and domestic levels, and their implications for tourism development and management. **CO4:** Assess and analyze the impact of tourism on economy, environment and society, and apply the

		principles of eco-tourism and sustainable tourism to minimize the negative effects and maximize the positive benefits. **CO5:** Examine and appreciate the tourism infrastructure and potential of India, and study the case examples of Himalaya, desert and coastal areas. Also, understand and critique the national tourism policy of India and its implementation.
SEMESTER-II		
GEO/H/GE/T/02/A (Theory)	**Geospatial Technology**	**CO1:** Understand the definition, scope, and historical development of geospatial technology, including its significance in modern applications. **CO2:** Students will proficiently explain the concepts of spheroid, ellipsoid, and projection systems. They will accurately utilize WGS 84 and UTM coordinate systems for geospatial data representation. **CO3:** Exhibit skill in handling different types of spatial data and organizing them effectively, enabling efficient retrieval and analysis. **CO4:** Apply critical analysis to categorize remote sensing platforms, assess their sensor capabilities, and evaluate image resolution for informed decision-making. Describe the characteristics and capabilities of IRS (Resourcesat and Cartosat) and Landsat systems. **CO5:** Students will apply GPS, DGPS, and Total Station techniques to accurately determine positions and collect geospatial data for diverse applications. **CO6:** Students will utilize spatial information systems to retrieve relevant data, model topological relationships, analyze networks, perform overlay operations, and generate appropriate data outputs. **CO7:** Showcase expertise in employing visual and digital techniques to interpret remote sensing images, translating them into actionable insights. **CO8:** Students will be able to develop and critically evaluate web-based spatial platforms, exemplified by Bhuvan and Google Earth, for their role in providing accessible geospatial information. **CO9:** Students will apply their acquired knowledge to various domains, effectively utilizing geospatial technology for tasks such as urban planning, disaster management, agriculture, and environmental monitoring.

GEO/H/GE/T/02/B (Theory)	**Regional Development**	**CO1:** The students will be able to explain the concept of region, its evolution, types, and need for regional planning. They will be able to distinguish between formal, functional, and planning regions and understand their role in regional development. **CO2:** The students will be able to identify and analyze the causes and consequences of regional imbalances and problems of functional regions. They will be able to evaluate the policies and programs aimed at reducing regional disparities and promoting balanced development. **CO3:** Able to apply the criteria and methods for choosing a region for planning. They will be able to delineate planning regions based on various factors and indicators. Also able to recognize the agro-ecological zones of India and their significance for planning. **CO4:** Compare and contrast different strategies and models for regional planning, such as the growth pole model of Perroux, the Growth Centre model in Indian context, and the village cluster approach. They will be able to assess the strengths and weaknesses of each model and their applicability to different regions. **CO5:** Define and classify problem regions and regional planning. They will be able to examine the case studies of backward regions and regional plans in India, such as the special area development plans and the DVC project. They will be able to identify the success factors and failures of these plans and suggest ways to improve them. **CO6:** Understand the concept of human development and HDI (Human Development Index). They will be able to measure and compare the level of human development across regions using HDI and other indicators. They will be able to relate human development to regional development and planning.
SEMESTER-III		
GEO/H/GE/T/03/A (Theory)	**Climate Change: Vulnerability and Adaptation**	**CO1:** Understand the fundamental principles of climate change, including the greenhouse effect, greenhouse gases, and their role in global warming. Explain the relationship between human activities, such as the burning of fossil fuels, and the increase in greenhouse gas concentrations. Analyze the content and significance of the Intergovernmental Panel on Climate Change (IPCC) reports in assessing global climate trends and projections.

		CO2: Able to assess the vulnerability of different regions, sectors, and groups to climate change. They will be able to distinguish between physical, economic, and social vulnerability and their interrelations. They will be able to identify the factors that increase or reduce vulnerability and resilience. **CO3:** Evaluate the impact of climate change on various aspects of human and natural systems, such as agriculture and water, flora and fauna, and human health. They will be able to use relevant indicators and methods to measure and monitor the impact of climate change. They will be able to recognize the potential feedbacks and tipping points that may amplify or mitigate the impact of climate change. **CO4:** Explore the options and strategies for adaptation and mitigation of climate change. They will be able to examine the global initiatives with particular reference to South Asia, such as the UNFCCC, the Kyoto Protocol, the Paris Agreement, and the NDCs. They will be able to critically analyze the challenges and opportunities for adaptation and mitigation in different contexts and scales. **CO5:** The students will be able to comprehend the key concepts of the National Action Plan of India on Climate Change (NAPCC) and its eight missions. They will be able to appreciate the role of local institutions (urban local bodies, panchayats) on climatic change mitigation. They will be able to design and implement awareness and action programs for climate change mitigation at the local level.
GEO/H/GE/T/03/B (Theory)	**Rural Development**	**CO1:** Explain the concept and dimensions of development and how it relates to rural areas. Analyze the inter-dependence and linkages between urban and rural sectors of the economy and their implications for rural development. Identify the need and challenges for rural development in India and the role of various stakeholders. Appreciate the Gandhian approach of rural development and its relevance in the contemporary context. **CO2:** Understand the structure and functioning of the Panchayatiraj system and its role in rural governance and development. Describe the characteristics and issues of agriculture and allied sectors in rural India and their contribution to rural livelihoods. Recognize the impact of seasonality on rural economy and the need for diversifying and expanding non-farm activities.

		Evaluate the potential and challenges of co-operatives and PURA (Provision of Urban Amenities in Rural Areas) as models of rural development. **CO3:** Assess the causes and consequences of drought in rural areas and the measures taken to mitigate its effects. Examine the objectives, features and outcomes of the Drought Prone Area Programmes (DPAP) and their impact on rural development. Understand the importance of rural road connectivity for enhancing access, mobility and opportunities for rural people. Review the implementation and performance of the Pradhan Mantri Gram Sadak Yojana (PMGSY) and its impact on rural development. **CO4:** Identify the target groups for rural development and their specific needs and problems. Analyze the objectives, strategies and outcomes of the Swarnjayanti Gram Swarozgar Yojana (SJSY) and its impact on rural poverty alleviation and empowerment. Evaluate the rationale, design and implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) and its impact on rural employment, income, assets and environment. Understand the concept and benefits of financial inclusion for rural people and the role of Jan Dhan Yojana in promoting it **CO5:** Recognize the importance of basic services such as education, health care and micro credit for improving the quality of life and human development of rural people. Assess the status, gaps and challenges in providing physical and socio-economic access to elementary education and primary health care in rural areas. Explore the role of micro credit as a tool for enhancing rural income, savings, investment, entrepreneurship and empowerment. Examine the best practices and innovations in delivering these services in rural areas
SEMESTER-IV		
GEO/H/GE/T/04/A (Theory)	**Industrial Geography**	**CO1:** Understand the nature and scope of industrial geography as a sub-discipline of Geography. **CO2:** Classify industries based on various criteria (e.g., size, type, raw materials) and explain the significance of each classification. Analyze the geographical characteristics of different industries, including small and medium industries, heavy industries, agro-based industries, and footloose industries.

		CO3: Analyze the factors influencing the location of industries and the applicability of Weber's theory of industrial location in different contexts. **CO4:** Evaluate the significance of mega industrial complexes in regional and national economic development. Analyze case studies of prominent industrial complexes like the Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region, and Chota Nagpur Industrial Region. **CO5:** Assess the environmental impact of industrialization in India, such as pollution, resource depletion, waste generation, and health hazards, and to suggest measures for mitigation and adaptation. **CO6:** Evaluate the industrial policy in India since 1991 and its implications for industrial growth, regional disparities, competitiveness and sustainability.
GEO/H/GE/T/04/B (Theory)	**Sustainable Development**	**CO1:** Demonstrate a comprehensive understanding of sustainable development concepts, principles, and their historical evolution. Analyze the limitations and challenges of implementing sustainable development in diverse contexts. **CO2:** Analyze the needs and significances of sustainable regional development in different contexts and scales, and apply the principles and tools of planning and management for achieving it. **CO3:** Understand the role and importance of inclusive development for ensuring human rights, equity and justice, especially in the areas of education and health. **CO4:** Comprehend the relationship between climate change and sustainable development. Analyze different policy approaches to mitigate climate change impacts and promote sustainable practices. Assess the importance of global cooperation and international agreements in addressing climate change challenges. **CO5:** Examine the complex relationship between poverty, disease, and access to healthcare services. Understand the concept of the human right to health and its implications for policy and practice. Evaluate the challenges and opportunities associated with achieving universal health coverage in different socio-economic contexts. **CO6:** Analyze the formulation and implementation of sustainable development policies and programs.

		Interpret the Sustainable Development Goals (SDGs) proposed at Rio+20 and their relevance to various sectors. Apply the concept of goal-based development to real-world scenarios and policy design. **CO7:** Understand the financial implications of sustainable development initiatives and projects. Evaluate different financing mechanisms, such as public-private partnerships and impact investing, for sustainable development. Analyze the challenges and opportunities in securing funding for sustainable development projects. **CO8:** Define the principles of good governance in the context of sustainable development. Analyze the role of transparent and accountable governance in promoting sustainable practices. Propose strategies for improving governance structures to better align with sustainable development objectives. **CO9:** Understand the importance of national environmental policies in promoting sustainable development. Evaluate the Clean Development Mechanism as a tool for incentivizing emission reduction projects in developing countries. Analyze the effectiveness and challenges of integrating environmental policies into broader sustainable development strategies. **CO10:** Identify the linkages between sustainable resource management, economic development, and livelihood security. Evaluate strategies for sustainable extraction and utilization of regional resources. Propose innovative approaches to enhance livelihood security while maintaining resource sustainability.

COURSE OUTCOMES
OF
B.A/B.SC. GENERAL/ PROGRAM COURSE IN GEOGRAPHY
UNDER CBCS

SEMESTER-I		
Course Code	**Course Title**	**Course Outcomes**
GEO/G/CC/T/01 (Theory)	**Geotectonics and Geomorphology**	**CO1:** Understand the composition and layered structure of the lithosphere based on seismic evidence, grasping the significance of seismic waves in revealing the Earth's interior. **CO2:** Identify different types of weathering processes and relate them to the formation of specific landforms. Evaluate the role of weathering in shaping landscapes over time. **CO3:** Describe the theory of plate tectonics and its role in the formation of various landforms such as mountains, rift valleys, and mid-ocean ridges. Recognize the dynamic interactions at plate boundaries. **CO4:** Analyze and compare the landform development in arid regions and glaciated regions, and recognize the geomorphic agents and processes involved in shaping these landscapes. **CO5:** Interpret the development of fluvial landforms. Understand how running water shapes landscapes through erosion, transportation, and deposition. **CO6:** Evaluate and critique the fluvial cycle of erosion models proposed by Davis and Penck, and their applicability and limitations in different environmental settings. **CO7:** Gain a comprehensive understanding of the hydrological cycle, ocean bottom relief features, tides, and ocean currents. Recognize the interconnectedness of Earth's water systems and their role in shaping coastlines and oceanic landscapes.
GEO/G/CC/P/01 (Practical)	**Scale and Cartography**	**CO1:** Students will be able to understand the concept and types of map scale, and how to use them for different purposes and applications. **CO2:** Able to perform map scale conversions and enlargements using linear and comparative scale methods, and explain their advantages and disadvantages.

		CO3: Represent various types of data on maps using dot, proportional circles, choropleth, and flow diagram techniques. Also evaluate their suitability and effectiveness. **CO4:** By the end of this course, students will be able to construct and interpret Taylor's climograph and hythergraph, which are graphical representations of the climate of a place, and compare them with other climatic regions.
SEMESTER-II		
GEO/G/CC/T/02 (Theory)	**Climatology, Soil and Biogeography**	**CO1:** Students will demonstrate a deep understanding of the elements of weather and climate, encompassing the thermal and chemical composition of the atmosphere. They will be able to differentiate between the layers of the atmosphere and explain how these layers contribute to various atmospheric phenomena. **CO2:** Students will analyze the heat balance of the Earth, interpret pressure belts, and articulate the planetary wind circulation system. They will exhibit proficiency in explaining how these patterns impact climate, weather, and global atmospheric circulation. **CO3:** Identify the different forms of precipitation and types of rainfall, and how they are related to the atmospheric stability and moisture content. **CO4:** Students will elucidate the differences between tropical and temperate cyclones, drawing connections between their formation and the prevailing atmospheric conditions. They will proficiently apply the Köppen climate classification system to categorize various climatic zones across the globe. **CO5:** Define soil and comprehensively describe its physical and chemical properties, including texture, color, and pH. They will recognize the significance of these properties in influencing soil fertility, structure, and suitability for various agricultural practices. **CO6:** Students will analyze the factors contributing to soil formation, exploring specific examples such as Podzol and Laterite soils. They will showcase their ability to connect geological, climatic, and biological influences on soil development. **CO7:** Able to define biosphere and biogeography as the study of life on Earth, and understand the meaning of ecology, ecosystem, environment, ecotone, communities, habitats, and biotopes as the key concepts in ecological studies.

		CO8: Students will identify and critically analyze major environmental problems, including air pollution, biodiversity loss, and solid and liquid waste management. They will propose sustainable solutions and management strategies to mitigate these challenges, showcasing their understanding of the interconnectedness of environmental systems.
GEO/G/CC/P/02 (Practical)	**Surveying and Levelling**	**CO1:** Students will be able to comprehend the fundamental concepts of surveying, including its definition and various classifications. They will gain a clear understanding of the different types of surveys, their applications, and the essential principles that guide surveying practices. **CO2:** Upon completion of this section, students will have the capability to perform both open and close traversing using a prismatic compass. They will be adept at selecting appropriate traverse methods, conducting fieldwork with precision, managing observational errors, and calculating accurate traverse coordinates. Furthermore, students will gain hands-on experience in compass adjustments and compass survey data analysis. **CO3:** By the end of this segment, students will possess the skills to create a longitudinal profile using a dumpy level. They will learn how to set up and level the instrument, take measurements, and record data accurately in the field. Subsequently, they will be able to translate this field data into a well-constructed longitudinal profile drawing, including the proper representation of vertical scale, benchmarks, and other essential elements.
SEMESTER-III		
GEO/G/CC/T/03 (Theory)	**Human Geography**	**CO1:** Explain the definition, nature, major subfields, and contemporary relevance of Human Geography. **CO2:** Analyze the spatial distribution of cultural regions, race, religion, and language, and comprehend their impact on societal interactions and identities. **CO3:** Evaluate the factors influencing population growth and the stages of demographic transition theory. **CO4:** Identify and describe various types of population migration in the context of India, highlighting the drivers and consequences of these movements.

		CO5: Interpret global population distribution and composition, including age, gender, and literacy, and recognize their significance in socio-economic development. **CO6:** Identify the types and patterns of rural settlements and their relationship with physical and cultural factors. **CO7:** Classify urban settlements based on size, function, and administrative status. Also categorize towns according to their economic roles.
GEO/G/CC/P/03 (Practical)	**Map Projection and Map Interpretation**	**CO1:** Demonstrate a comprehensive understanding of the principles underlying simple conical projections with a single standard parallel. **CO2:** Construct and analyze maps using cylindrical equal area projections to accurately represent area relationships on a global scale. **CO3:** Analyze the topographical maps of various areas and understand the relation among physiography, drainage and settlement patterns. **CO4:** Interpret the weather maps of pre-monsoon, monsoon and post-monsoon seasons and explain the climatic variations and phenomena associated with them.
GEO/G/SEC/P/01/A (Practical)	**Computer Basics and Computer Applications**	**CO1:** Gather the concept about numbering system. **CO2:** Apply the knowledge of computer technology to solve various problems. **CO3:** Develop their ability and skills in data management, data computation, data analysis and cartographic presentation. **CO4:** Acquire internet surfing skills and enhance their ability to gain knowledge from the digital world.
GEO/G/SEC/P/01/B (Practical)	**Remote Sensing**	**CO1:** Explain the basic concepts and principles of remote sensing, including the classification of satellites and sensors. **CO2:** Students will be able to apply different sensor resolutions, such as spatial, spectral, temporal and radiometric, to various remote sensing applications, with reference to IRS and Landsat missions. **CO3:** Able to prepare false colour composites from IRS LISS-III, Landsat TM and Landsat ETM data, and

		understand the principles of image rectification and enhancement techniques. **CO4:** Students will be able to interpret satellite images using visual and digital methods, and extract features of interest based on their spectral, spatial, temporal and contextual characteristics. Also able to prepare inventories of landuse /landcover features from satellite images and analyze the patterns and processes of landuse/landcover change using remote sensing data.
SEMESTER-IV		
GEO/G/CC/T/04 (Theory)	**Environmental Geography**	**CO1:** Explain the basic concepts and approaches of environmental geography and how they relate to the study of human-environment interactions. **CO2:** Develop a deep understanding of the structure and functions of ecosystems, including the intricate relationships between biotic and abiotic components and their role in sustaining life on Earth. **CO3:** Define and differentiate terms such as biosphere, ecology, ecotone, habitat, community, ecological niche, biotopics, and biomes, allowing for a nuanced understanding of the various ecological components and their interactions. **CO4:** Identify and analyze pressing environmental issues, particularly air and water pollution, while gaining insights into effective management strategies and solutions to mitigate these challenges. **CO5:** Acquire knowledge about prominent environmental programs and policies, with a specific focus on the Man and the Biosphere (MAB) program. **CO6:** Recognize the importance and value of wetlands as a natural resource and a habitat for various species. Also examine the Ramsar sites in India as examples of wetland conservation and management. **CO7:** Develop the ability to analyze the intricate relationships between humans and the environment in both mountainous and coastal regions. Also understanding the unique challenges and opportunities these areas present.
GEO/G/CC/P/04 (Practical)	**Field Work**	**CO1:** Design a comprehensive survey schedule or questionnaire for conducting an Air Pollution and Health Perception Survey.

		CO2: Apply topographical sheets to accurately locate and map wetlands within a given geographical area. **CO3:** Utilize topographical sheets to effectively identify and map forested areas, incorporating features such as tree density, species composition and canopy coverage.
GEO/G/SEC/P/02/A (Practical)	**Advance Spatial Statistical Techniques**	**CO1:** Differentiate between spatial and non-spatial data and understand their significance in geographical analysis. Explain the concept of Nearest Neighbour Analysis and its applications in determining spatial patterns. **CO2:** Define and understand the concept of probability and its role in geographical analysis. Explain the characteristics and applications of the Normal Distribution in geographical data. Apply the concept of skewness using Pearson's method to analyze asymmetry in geographic datasets. Utilize probability and distribution concepts to address real-world geographic scenarios and make informed decisions. **CO3:** Develop appropriate sampling plans for both spatial and non-spatial datasets considering their unique characteristics. Understand the concept of sampling distributions and its importance in making statistical inferences from samples. Compute sampling estimates for means and proportions using both large and small sample sizes. Apply hypothesis tests involving means and proportions to draw conclusions from sampled geographic data. **CO4:** Differentiate between rank order correlation and product moment correlation and apply them to analyze relationships in geographic data. Understand linear regression analysis and its role in predicting and modeling spatial phenomena. Interpret residuals from regression analysis to assess the goodness-of-fit of a model. **CO5:** Apply the Least Squares method to analyze and predict trends in time series data within a geographical context. Utilize the Moving Mean method to identify and interpret short-term variations in time series data. Understand the various components of a time series, including trend, seasonality, and noise, and their significance in geographic analysis. Analyze and interpret time series data from geographic sources to extract meaningful temporal patterns and inform decision-making.

		CO6: Learn to handle statistical software.
GEO/G/SEC/P/02/B (Practical)	**Field Work**	**CO1:** Construct link between bookish knowledge and reality by participating in Field Survey. **CO2:** Enhance their computer skills. **CO3:** Develop a clear concept about the socio-economic scenario of different regions. **CO4:** Acquire knowledge, skills and expertise to identify geographical issues **CO5:** Achieve skills and expertise to use various survey techniques and instruments **CO6:** Expertise in field-based data collection, analysis and presentation **CO7:** prepare field report **CO8:** Build capacity to interact with people of diverse culture
SEMESTER-V		
GEO/G/DSE/T/01/A (Theory)	**Geography of India**	**CO1:** Comprehensive understanding of India's physical attributes, including its geographical location, diverse relief structures, intricate drainage systems, and variegated climate patterns, establishing a solid foundation in the nation's natural setting. **CO2:** Analyze the historical progression of India's population growth from 1901 to the present, interpreting the intricate interplay between demographic shifts, population distribution, literacy rates, and sex ratios, thereby illustrating a nuanced comprehension of its societal dynamics. **CO3:** Evaluate the intricate mosaic of rural settlement types and patterns while unraveling the complex urban configuration, showcasing an adept grasp of India's diverse settlement systems and their socio-economic implications. **CO4:** Critically assess the pivotal role of livestock (cattle and fisheries), energy resources (coal and hydroelectricity) and essential minerals (iron ore and bauxite) in shaping India's resource base, exhibiting a profound understanding of the nation's economic underpinnings. **CO5:** Examine the diverse agricultural landscape encompassing rice, wheat, sugarcane, groundnut, and

		cotton crops, delve into the transformative potential of key industries like cotton textiles, iron-steel, and automobiles, and elucidate the pivotal role of road and rail transportation modes in India's economic fabric, showcasing a holistic comprehension of its economic intricacies**.**
GEO/G/DSE/T/01/B (Theory)	**Economic Geography**	**CO1:** Develop a profound comprehension of Economic Geography by dissecting its definition, varied approaches and fundamental concepts, leading to an informed analysis of development patterns that underlie global economies. **CO2:** Demonstrate adept understanding of locational theories pivotal to Economic Geography, encompassing the application of Von Thunen's principles to agriculture and Weber's insights to industrial processes, revealing a nuanced grasp of spatial-economic relationships. **CO3:** Skillfully evaluate diverse primary activities such as intensive subsistence farming, commercial grain farming, plantations, commercial dairy farming, fishing, and mining (iron ore, coal, and petroleum), unveiling a comprehensive understanding of their geographical significance. **CO4:** Critically analyze the cotton textile industry, petrochemical sector, and major manufacturing hubs, showcasing an ability to assess the spatial dynamics of secondary activities and their role in shaping economic landscapes. **CO5:** Demonstrate adeptness in discerning the modes of transportation, intricate patterns of international trade, and the burgeoning influence of the information and communication technology (ICT) industry, highlighting a holistic grasp of tertiary and quaternary activities' global impact.
GEO/G/SEC/P/03/A (Practical)	**Field Techniques and Survey Based Project**	**CO1:** Construct link between bookish knowledge and reality by participating in Field Survey. **CO2:** Develop a clear concept about the socio-economic scenario of different regions. **CO3:** Acquire knowledge, skills and expertise to identify geographical issues **CO4:** Achieve skills and expertise to use various survey techniques and instruments

		CO5: Expertise in field-based data collection, analysis and presentation **CO6:** prepare field report **CO7:** Build capacity to interact with people of diverse culture
GEO/G/SEC/P/03/B (Practical)	**Collection, Mapping and Interpretation of Climatic Data**	**CO1:** Acquire a comprehensive understanding of diverse sources supplying climatic data, enabling the adept collection and utilization of information crucial for climatic analysis and interpretation. **CO2:** Develop proficiency in handling various weather measurement instruments like the thermometer, barometer, hydrometer, rain gauge and wind vane, facilitating precise observation and recording of weather elements. **CO3:** Skill to create accurate temperature-rainfall graphs. **CO4:** Master the technique of crafting isotherms (lines of equal temperature) and isohyets (lines of equal precipitation) on maps, enabling the visualization and comparison of temperature and rainfall distribution over geographical areas. **CO5:** Develop the capability to construct climographs using Taylor's method, hythergraphs depicting temperature and humidity fluctuations, and windrose diagrams illustrating prevailing wind directions and intensities, enhancing the ability to represent complex climatic information visually. **CO6:** Hone the skill to decipher and interpret Indian daily weather maps, thereby unraveling the intricate interplay of weather systems and patterns over the region, showcasing an adept understanding of synoptic meteorological analysis.
GEO/G/GE/T/01 (Theory)	**Disaster Management**	By the end of this course, the students will be able to: **CO1:** Define and classify different types of hazards and disasters, and explain their causes, impacts, distribution and mapping. **CO2:** Assess the risk and vulnerability of various regions and communities to natural and man-made disasters in India, and suggest appropriate prevention and mitigation measures.

		CO3: Identify and analyze the institutional, legal, social and cultural aspects of disaster response and management in India, and evaluate the role of various stakeholders such as NDMA, NIDM, NGOs and local communities. **CO4:** Apply the concepts and principles of disaster management to design and implement effective disaster preparedness and recovery plans, and demonstrate the do's and don'ts during and post disasters. **CO5:** Appreciate the importance of indigenous knowledge and community-based disaster management, and integrate them with scientific and technological approaches for sustainable disaster risk reduction.
SEMESTER-VI		
GEO/G/DSE/T/02/A (Theory)	**Disaster Management**	By the end of this course, the students will be able to: **CO1:** Define and classify different types of hazards and disasters, and explain their causes, impacts, distribution and mapping. **CO2:** Assess the risk and vulnerability of various regions and communities to natural and man-made disasters in India, and suggest appropriate prevention and mitigation measures. **CO3:** Identify and analyze the institutional, legal, social and cultural aspects of disaster response and management in India, and evaluate the role of various stakeholders such as NDMA, NIDM, NGOs and local communities. **CO4:** Apply the concepts and principles of disaster management to design and implement effective disaster preparedness and recovery plans, and demonstrate the do's and don'ts during and post disasters. **CO5:** Appreciate the importance of indigenous knowledge and community-based disaster management, and integrate them with scientific and technological approaches for sustainable disaster risk reduction.
GEO/G/DSE/T/02/B (Theory)	**Geography of Tourism**	By the end of this course, the students will be able to: **CO1:** Understand and explain the scope and nature of tourism, recreation and leisure, and their inter-relations with geographical parameters and issues.

		CO2: Distinguish and compare different types of tourism, such as nature, cultural, medical and pilgrimage, and their characteristics, motivations and impacts. **CO3:** Identify and evaluate the recent trends of tourism at international, regional and domestic levels, and their implications for tourism development and management. **CO4:** Assess and analyze the impact of tourism on economy, environment and society, and apply the principles of eco-tourism and sustainable tourism to minimize the negative effects and maximize the positive benefits. **CO5:** Examine and appreciate the tourism infrastructure and potential of India, and study the case examples of Himalaya, desert and coastal areas. Also, understand and critique the national tourism policy of India and its implementation.
GEO/G/GE/T/02 (Theory)	**Sustainable Development**	**CO1:** Demonstrate a comprehensive understanding of sustainable development concepts, principles, and their historical evolution. Analyze the limitations and challenges of implementing sustainable development in diverse contexts. **CO2:** Analyze the needs and significances of sustainable regional development in different contexts and scales, and apply the principles and tools of planning and management for achieving it. **CO3:** Understand the role and importance of inclusive development for ensuring human rights, equity and justice, especially in the areas of education and health. **CO4:** Comprehend the relationship between climate change and sustainable development. Analyze different policy approaches to mitigate climate change impacts and promote sustainable practices. Assess the importance of global cooperation and international agreements in addressing climate change challenges. **CO5:** Examine the complex relationship between poverty, disease, and access to healthcare services. Understand the concept of the human right to health and its implications for policy and practice. Evaluate the challenges and opportunities associated with achieving universal health coverage in different socio-economic contexts.

		CO6: Analyze the formulation and implementation of sustainable development policies and programs. Interpret the Sustainable Development Goals (SDGs) proposed at Rio+20 and their relevance to various sectors. Apply the concept of goal-based development to real-world scenarios and policy design. **CO7:** Understand the financial implications of sustainable development initiatives and projects. Evaluate different financing mechanisms, such as public-private partnerships and impact investing, for sustainable development. Analyze the challenges and opportunities in securing funding for sustainable development projects. **CO8:** Define the principles of good governance in the context of sustainable development. Analyze the role of transparent and accountable governance in promoting sustainable practices. Propose strategies for improving governance structures to better align with sustainable development objectives. **CO9:** Understand the importance of national environmental policies in promoting sustainable development. Evaluate the Clean Development Mechanism as a tool for incentivizing emission reduction projects in developing countries. Analyze the effectiveness and challenges of integrating environmental policies into broader sustainable development strategies. **CO10:** Identify the linkages between sustainable resource management, economic development, and livelihood security. Evaluate strategies for sustainable extraction and utilization of regional resources. Propose innovative approaches to enhance livelihood security while maintaining resource sustainability.
GEO/G/SEC/P/04/A (Practical)	**Collection, Mapping and Interpretation of Pedological Data**	**CO1:** Attain proficiency in the systematic procedure of soil sample collection, equipping you with the skills to gather accurate and representative soil specimens for comprehensive pedological analysis. **CO2:** Develop the ability to construct informative ternary diagrams using soil texture data, facilitating the visual representation and interpretation of soil composition and texture variations. **CO3:** Acquire the expertise to determine soil pH effectively using soil kits, enabling precise assessment of soil acidity or alkalinity and its significance in agricultural and ecological contexts.

		CO4: Cultivate the skill to estimate soil organic carbon levels using soil kits, allowing for accurate quantification of this crucial component and its implications for soil fertility and carbon sequestration. **CO5:** Gain proficiency in the estimation of available NPK (nitrogen, phosphorus and potassium) using soil kits, enabling you to assess essential nutrient levels crucial for plant growth and land productivity. **CO6:** Develop the capability to create maps and meaningfully interpret variations in soil pH, NPK levels and organic carbon content, facilitating a holistic understanding of soil fertility and its spatial distribution.
GEO/G/SEC/P/04/B (Practical)	**Rocks and Minerals and their Megascopic Identification**	**CO1:** Develop a comprehensive understanding of various rock and mineral types, encompassing their distinct characteristics, origins and geological significance, forming a solid foundation in geology. **CO2:** Acquire proficiency in the megascopic identification of diverse rocks and minerals such as granite, basalt, dolerite, shale, limestone, sandstone, gneiss, slate, quartzite, marble, quartz, feldspar, muscovite, biotite, calcite, bauxite, magnetite, haematite, galena, and chalcopyrite. Demonstrate the ability to identify their unique features, aiding in field recognition and interpretation**.** **CO3:** Students will be well-equipped to differentiate and identify various rocks and minerals based on their macroscopic characteristics.