COURSE OF GEOGRAPHY HONOURS (B.A. & B.SC.)

UNDER CBCS and NEP*

The study of Geography gives us a thorough understanding of the world in which we live. Understanding the human population, the natural environment, and the interactions between the two is the main focus of this study. Using a variety of instruments and methods, including surveying instruments, Topographical Maps, aerial photos, satellite images, and Geographical Information systems, geographers investigate many geographical features of the planet. Geography has been a significant discipline since antiquity, as early civilizations utilized it for navigation, trade, and the establishment of political boundaries.
Geography is concerned with the study of the Earth's surface, which includes the spatial analysis of physical, biological, and human events occurring on the planet. The field of geography encompasses three distinct types of areas on the Earth's surface: the lithosphere, the atmosphere, and the hydrosphere. Depending on the types of elements or phenomena and regions examined in geographical research, the scope of geography can be written as follows.

- Understanding the Earth's Systems: Geography aids in grasping the intricate relationships among the Earth's atmosphere, hydrosphere, lithosphere, and biosphere.
- Analysing Spatial Patterns: This involves investigating the distribution of various phenomena, including population density, economic activities, and natural resources, to gain insights into spatial relationships and trends.
- Investigating Human-Environment Interactions: Geography delves into how human activities affect the environment and how environmental elements shape human societies.
- Tackling Global Issues: Geography is instrumental in tackling global issues such as climate change, resource depletion, and sustainable development.
- Formulating Solutions: Geography offers essential tools and insights for formulating solutions to a range of societal and environmental challenges.

Essentially, the field of geography encompasses a wide range of dimensions, providing a framework for comprehending the complexities of our world and tackling the challenges presented in the 21st century and onwards.

Choice Based Credit System (CBCS): Syllabus in Geography since 2018-2019 academic sessions:

In accordance with the latest directives from the University Grants Commission, the undergraduate Geography syllabus has been revised by the Undergraduate Board of Studies at the University of Calcutta to align with the Choice Based Credit System, primarily following the model syllabus developed by the West Bengal State Council of Higher Education. As an affiliated college of the University of Calcutta, the institution has implemented the newly revised CBCS (Choice Based Credit System) curriculum for the undergraduate level in this subject since the academic year 2018-2019.

The primary objective of the CBCS syllabus is to assist students in obtaining suitable placements upon completing their undergraduate program.

With this goal in mind, and in alignment with the evolving nature of Geography, significant focus is placed on the practical aspects of the subject, including new mapping techniques and field-based data collection, particularly in the honours course. The syllabus prioritizes the development of fundamental skills in the subject, ensuring that not all students feel compelled to pursue further studies in order to find professional opportunities or employment.

COURSE OUTCOMES [Honours]

Course Code	Course Title	Credits	Course Outcomes
		Semester-1	
GEOACOR01T and 01P	Geotectonics and Geomorphology	4+2=6	Grasp the theories and essential principles of Geotectonics and Geomorphology. Grasp the tectonic and structural evolution of the earth with reference to geological time scale. Acquire insights into the earth's interior. Formulate an understanding of the concepts of Isostasy,orogeny, mountain formation, continental drift, plate tectonics, and the resulting landforms. • Gain knowledge about various types of folds, faults, • Understand crustal mobility and tectonics, focusing on their significance in landform development at plate margins. • Provide an overview and critical evaluation of landform development models. Weathering mass wasting and resulting landforms • Development of river network and landforms on uniclinal and folded structure, landform development on Granite and Basaltic rocks.Coastal, glacial,glacial fluvial landforms, Aeolian, fluvio-aeolian alndforms. Models of landscape evolution – Davis, Penck and Hack • Identify rocks and minerals from hand specimens. • Geological maps of uniclinal and folded structure and its interpretation
GEOACOR02T and 02P	Cartographic Techniques	4+2=6	Understand and prepare different kinds of maps, components, concept and application of scales • Knowing the Reference scheme of old and open series maps and information given in margins. • Development of observation skills, gaining knowledge of coordinate systems, generating globe, UTM projection, Grids. • Acquisition of knowledge about map projection and classification. • Hands on Training of graphical construction of linear, diagonal and vernier scale, • Construction of polar zenithal, simple conic, Bonnes, cylindrical equal area Mercator's projection • Knowing about drainage basin, identification and delineation, drawing or profiles, and stream ordering. • Physical and cultural features correlation using Transect chart
		Semester-2	
GEOACOR03T	Human Geography	6	• Gain knowledge about major themes and recent trends and approaches of human Geography. •Classification of Race and space, social and cultural regions • Acquire knowledge on the history and evolution of humans and societies. • Understand the approaches and processes of Human Geography as well as the diverse patterns of habitat and adaptations. • Develop an idea about space and society, human adaptation focusing on specific tribes, •Gaining knowledge about Rural Settlement types and patterns
GEOACOR04T and 04P	Cartograms and Thematic Mapping	4+2=6	• Conceptualize scientific notation, rounding, logarithm and anti-logarithm, natural and log scale, • knowing about the diagrammatic representation of data and its application and presentation of area data, socio-economic maps • Gaining knowledge about preparation and interpretation of land use and land cover maps • conceptual development of the concept of bearing • Learn

			the usage of survey instruments like prismatic compass, dumpy level , theodolite etc. • Hands on training on thematic maps, traverse survey using Prismatic compass, profile survey using dumpy level.
		Semester-3	
GEOACOR05T and 05P	Climatology	4+2	• Understand the elements of weather and climate, nature composition and layering of atmosphere • Learn to associate Insolation and heat budget of the atmosphere • to analyze the dynamics of the atmospheric temperature its distribution and temperature inversion • importance of Ozone layer and greenhouse effect. • Understanding the process and types of condensation, precipitation, air mass, • development of concepts front genesis, frontolysis, stability and instability of atmosphere and barotropic and baroclinic condition, • Learn the interaction between the atmosphere and the earth's surface. Understand the importance of the atmospheric pressure and winds. • Understand how the cyclone develops and monsoon circulation and mechanism in India, • Understand the importance and method of atmospheric classification • Prepare weather maps and charts and interpretation of basic weather elements present. • Learn to draw, use and apply Hythergraph and climograph and wind rose.
GEOACOR06T	Geography of India	6	Students will gain an understanding of the geography of our nation. • Develop an understanding of the relationship between physiography and drainage, climate, and soil. • Identify the country's resources on a map. • Learn about population growth, distribution, structure, and policy • Explore the concept of tribal life and culture through case studies of the Toda, Gaddi, Jarawas, and Santhals from various physiographic and climatic regions of India. • Comprehend the significance of age and explore new techniques used in agriculture and agricultural regions. • Acquire knowledge about distribution of different minerals and potential energy sources in India, • Acquire knowledge about the industrial development of the automobile and IT sectors, • Cultivate a strong understanding of the concept of regionalisation of India-physiographic and economic • Develop an understanding of the physiographic division and forest and water resources, • Cultivate a strong understanding of agriculture, mining and industrial resources of West Bengal, • Learn about population growth, distribution, and human development • There is an opportunity to study various regional issues and problems related to specific areas of the State, such as Darjeeling and the Sundarbans, which have distinctly different physiographic and climatic characteristics.
GEOACOR07T and 7P	Statistical Methods in Geography	4+2 = 6	Learn the significance and importance of statistical analysis in geography. Understand the concept of data, its types and data handling in geography, formation of statistical tables, Interpret statistical data for a holistic understanding of geographical phenomena and know about different types of sampling, its needs, significance. Develop an idea about theoretical distribution.

			Learn to use different methods of numerical data analysis. and Gain knowledge about association and correlation, regression and time series analysis Learn to construct data matrix, frequency table generation, central tendency dispersion etc. Analysis of sample set and drawing of scatter diagram and linear regression
Semester-4			
GEOACOR08T	Regional Planning and Development	6	Understand and identify regions as an integral part of geographical study. • Conceptual development of region its types, delineation, • Develop an understanding of the regional planning, types, principals, objectives, techniques, requirement of regional planning in India and respective multilevel planning, •growing knowledge about metropolitan and urban agglomeration, • Appreciate the varied aspects of regional development and disparity, indicators, theories and models of regional development, • realize the concept of underdevelopment and its causes, diversity and disparity of regional development of India, • realizing the Need to measure for balanced regional development in India.
GEOACOR09T	Economic Geography	6	• Recognize the notion and meaning of economic geography and associated concepts including economic man, economic distance • Learn about the various kinds of economic activity. Factors affecting them, • Detailed knowledge acquire on primary, secondary and tertiary activities, • growing specific knowledge about specific agricultural systems like tea plantation in India and mixed farming in Europe. • Understand the international trade and economic blocks operating like BRICs, WTO, GATT etc. their structure and functions.
GEOACOR10T And 10P	Environmental Geography	4+2=6	•Acquire an understanding of the concept and scope of environmental geography, as well as the components of the environment. • Cultivate an understanding of human-environment interactions. • Formulate a concept of ecosystems. • Familiarize oneself with environmental programs, policies, and their management. • Students will learn how to prepare a questionnaire based on perception surveys regarding environmental issues. • Gain insights into conducting projects focused on environmental challenges. • The course will also illuminate students on developing concepts and preparing checklists for Environmental Impact Assessments related to the formulation of specific project lists across various sectors.
Semester-5			
GEOACOR11T And 11P	Field work and research methodology	4+2=6	Understand the importance of fieldwork in geographical research. • Comprehend the definition and relevance of fieldwork in geographical studies while recognizing the various survey methods employed. • Familiarize yourself with the different types of field techniques and instruments. • Cultivate an understanding of research issues. • Enhance skills in photography, cartography, and video documentation. • The objective of this syllabus is to prepare a field report project based on primary data gathered from the field. • The subject will encompass both physical and socio-economic dimensions of the selected area. • Analyze the data utilizing various statistical methods.
GEOACOR12T And 12P	Remote Sensing and GIS	4+2=6	•Possess an understanding of the principles of remote sensing, satellites, sensor resolutions, and image referencing schemes. • Analyze satellite imagery and

			comprehend the process of creating false color composites from IRS-LISS III and Landsat-TM and OLI satellite images. •Receive and developing concept and knowledge of Geographic Information System (GIS) and its applicability to develop modern mapping skills. • principles of attribute table preparation, data manipulation, and overlay analysis, • Employ GIS techniques to transfer waypoints• Utilize Global Navigation Satellite System (GNSS) in area and length calculation. Receive training in the utilization of Geographic Information System (GIS) software to develop modern mapping skills- including georeferencing, digitisation, data attachment, overlay preparation, thematic map development etc. Preparation of FCC and other band combination required in many field now a days.
Semester-6			
GEOACOR13T	Evolution of Geographical Thought	6	• Examine the progression of geographical philosophy. • Recognize the impact of various contributions in the field of Geography including Greek, Chinese, Arab geographers. • Knowing about the age of Discovery and Exploration, • acquiring knowledge about the Transition from Cosmography to scientific Geography, Duality and Dichotomy. • Formulate concepts regarding the contributions made by different schools of geographical thought like Germany, France, Britain and USA. • Knowledge about the contributors of geography, • exploring the trends of geography in post-World War II, quantitative revolution, system approach etc. and evolution of cultural geography, highlighting the changing concept of time space in geography in 21st century
GEOACOR14T and 14P	Disaster Management	4+2=6	• Comprehend the characteristics of hazards and disasters and their classification,• Evaluate risk, perception, and vulnerability in relation to hazards, including hazard paradigms, response, trauma, aftermath, resilence and capacity building • Create hazard zonation maps. • Analyze the nature, impact, and management of significant natural and anthropogenic hazards that influence the Indian subcontinent including- earthquake, landslide, tropical cyclone, river bank erosion and radioactive fallout. Preparation of project report on a case study of hazards

COURSE OUTCOMES [DISCIPLINE SPECIFIC ELECTIVES]

Course Code	Course Title	Credits	Course Outcomes
Semester-5			
GEOADSE01T	Soil and Biogeography	6	• Gain knowledge about factors of soil formation and Understand the impact of man as an active agent of soil transformation, erosion and degradation. • Gain knowledge about the character and profile of different soil types on the basis of climatic differences. • Understand physical and chemical properties of soil in details, • Explaining the principles of soil and land classification; and management. • Understand the concept of bio-sphere varied ecosystems and classify, ecotone, biome, niche, succession etc. •comprehend energy flow in ecosystem and trophic structure and food chain and food web, • Recognize the significance of biogeochemical cycles and biodiversity. • identification of the spatial distribution of world fauna, • detailed knowledge about Man- Biosphere -

			Programme
GEOADSE03T	Population Geography	6	•This course aims to inform students about various perspectives concerning the relationship between population and development. • explore demographic transition models, including their origins, processes, and spatial consequences. • gain insights into different population policies and programs aimed at sustainable population management. • develop the confidence to envision the impacts of demographic transitions on the economy, society, and politics. • acquire a comprehensive understanding of population policies and their crucial role in managing population issues towards sustainability. • Additionally, they will be equipped to comprehend and analyze various contemporary societal issues.
Semester-6			
GEOADSE04T	Hydrology and Oceanography	6	•Understanding the approaches of Hydrology and hydrological cycle and its role. •Highlighting the importance of Run off, infiltration, evapotranspiration and run off cycle. •Assess the drainage basin as a hydrological unit, watershed management. Highlighting the role of ground water occurrence, storage, recharge, discharge and movement. •Investigate the properties and behaviours of the world's oceans, their ocean floor features, physical and chemical properties. Water mass and T_S diagram. •Recognize marine resources and types and causes of sea level change.
GEOADSE06T	Resource Geography	6	Understand the concept and classification of resources • Understand the approaches to resource utilization • Appreciate the significance of resources • Assess the pressure on resources • Analyze the problems of resource depletion with special reference to forests, water and fossil fuels • Understand the concept of Sustainable Resource development • Understand the distribution, utilization, problems and management of mineral resources and energy resources, • Analyse the contemporary energy crisis and assess the future scenario • Understand the concept of Limits to Growth, resource sharing and sustainable use of resources specifically Water resource.

Curriculum & Credit Framework for Undergraduate Courses in Geography under National Education Policy of 2020

INTRODUCTION: In compliance with directives on the Curriculum & Credit Framework from the University Grants Commission, the undergraduate syllabus for Geography is reframed under the National Education Policy of 2020. In a major deviation from its previous versions, the current syllabus uniquely caters to the students' requirement of education levels that would help them to balance between their professional and educational aspirations.

The four-year curriculum has four exit options that are hierarchically related to the level of educationat the end of second, fourth, sixth, and eighth semesters — i.e., at the completion of the first, second, third, and fourth years of the course. These would relate to the award of • certificates, • diplomas, • BSc Major in Geography, and

• BSc Honours in Geography, respectively. The course would also provide an opportunity to do research in the final Semester-8 for the meritorious students.

The present curriculum of Geography is designed to give the students a holistic understanding of the subject at every year of exit from the second year onwards, putting equal weightage to the core content and techniques used in Geography. The syllabus also tried to give similar importance to the two main branches of Geography: Physical and Human. Its principal goal of is to enable the students to secure a job at the end of the undergraduate programme. Keeping this in mind and in tune with the changing nature of Geography, adequate emphasis is rendered on applied aspects of the subject such as emerging techniques of mapping and field-based data generation, especially in the honours course.

Learning Outcomes: The syllabus is designed to impart basic knowledge on geography as a spatial science and train the undergraduates to secure employment in the sectors like geospatial analysis, developmental planning, and environment management.

The NEP SYLLABUS has been implemented by the WEST BENGAL STATE UNIVERSITY starting from the 2023-2024 academic session. Currently, the Department is offering two parallel syllabi in Geography: one that was introduced under the CBCS syllabus for the 2018-2019 academic session, which is applicable to Semester III, IV, V, and VI students who enrolled during the 2022-2023 session, and another that spans four years under the NEP course, which is designated for Semester I students who have enrolled in the Major Subject of Geography for the 2023-2024 session.

Code (Theory+ Practical)	**Code (Practical)**	**Credit**	**Course Outcomes**
		Semester-1	
GEOADS01T GEOADS01P	Physical Geography	3	
GEOADS02T GEOADS02P	Human Geography		• Gain knowledge about major themes and recent trends and approaches of human Geography. •Classification of Race and space, social and cultural regions • Acquire knowledge on the history and evolution of humans and societies. • Understand the approaches and processes of Human Geography as well as the diverse patterns of habitat and adaptations. • Develop an idea about space and society, human adaptation focusing on specific tribes, •Gaining knowledge about Rural Settlement types and patterns
		Semester-2	
GEOADS03T GEOADS03P	Geotectonics and Geomorphology	3+2=5	Grasp the theories and essential principles of Geotectonics and Geomorphology. Grasp the tectonic and structural evolution of the earth with reference to geological time scale. Acquire insights into the earth's interior. Formulate an understanding of the concepts of Isostasy,orogeny, mountain formation, continental drift, plate tectonics, and the resulting landforms. • Gain knowledge about various types of folds, faults, • Understand crustal mobility and tectonics, focusing on their significance in landform development at plate margins. • Provide an overview and critical evaluation of landform development models. Weathering mass wasting and resulting landforms • Development of river network and landforms on uniclinal and folded structure, landform development on Granite and Basaltic rocks.Coastal, glacial,glacial fluvial landforms, Aeolian, fluvio-aeolian alndforms. Models of landscape evolution – Davis, Penck and Hack Hands on training and experience to equip Identify rocks and minerals from hand specimens. • Geological maps of uniclinal and folded structure and its interpretation. • Reference scheme of Survey of India Everest and Open Series Maps, Drainage basin delineation, stream ordering (Strahler), Morphometric analysis: Preparation of Relative Relief (Smith), Average Slope (Wentworth) and Drainage Density (Horton) on a delineated drainage basin. Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin of a plateau region Determination of channel sinuosity index (channel length/valley length measured through straight line) and braiding index of rivers from topographical maps (c. 10-km reach)

GEOADS04T GEOADS04P	Climatology	3+2=5	• Understand the elements of weather and climate, nature composition and layering of atmosphere • Learn to associate Insolation and heat budget of the atmosphere • to analyze the dynamics of the atmospheric temperature its distribution and temperature inversion • importance of Ozone layer and greenhouse effect. • Understanding the process and types of condensation, precipitation, air mass, • development of concepts front genesis, frontolysis, stability and instability of atmosphere and barotropic and baroclinic condition, • Learn the interaction between the atmosphere and the earth's surface. Understand the importance of the atmospheric pressure and winds. • Understand how the cyclone develops and monsoon circulation and mechanism in India, • Understand the importance and method of atmospheric classification • Prepare weather maps and charts and interpretation of basic weather elements present. • Learn to draw, use and apply Hythergraph and climograph and wind rose.
GEOADS05T	Economic Geography	5	Recognize the notion and meaning of economic geography and associated concepts including economic man, economic distance • Learn about the various kinds of economic activity. Factors affecting them, • Detailed knowledge acquire on primary, secondary and tertiary activities, • growing specific knowledge about specific agricultural systems like tea plantation in India and mixed farming in Europe. • Understand the international trade and economic blocks operating like BRICs, WTO, GATT etc. their structure and functions.
GEOADS06T	Geography of India and West Bengal	5	Students will gain an understanding of the geography of our nation. • Develop an understanding of the relationship between physiography and drainage, climate, and soil. • Identify the country's resources on a map. • Learn about population growth, distribution, structure, and policy • Explore the concept of tribal life and culture through case studies of the Toda, Gaddi, Jarawas, and Santhals from various physiographic and climatic regions of India. • Comprehend the significance of age and explore new techniques used in agriculture and agricultural regions. • Acquire knowledge about distribution of different minerals and potential energy sources in India, • Acquire knowledge about the industrial development of the automobile and IT sectors, • Cultivate a strong understanding of the concept of regionalisation of India-physiographic and economic. • Develop an understanding of the physiographic division and forest and water resources, • Cultivate a strong understanding of agriculture, mining and industrial resources of West Bengal, • Learn about population growth, distribution, and human development • There is an opportunity to study various regional issues and problems related to specific areas of the State, such as Darjeeling and the Sundarbans, which have distinctly different physiographic and climatic characteristics.
GEOADS07T GEOADS07P	Cartographic Techniques and Thematic Mapping	3+2=5	• Understand and prepare different kinds of maps, components, concept and application of scales • Knowing the Reference scheme of old and open series maps and information given in margins. • Development of observation skills, gaining knowledge of coordinate systems, generating globe, UTM projection, Grids. • Acquisition of knowledge about map projection and classification. • Hands on Training of graphical construction of linear, diagonal and vernier scale,

			• Construction of polar zenithal, simple conic, Bonnes, cylindrical equal area Mercator's projection • Knowing about drainage basin, identification and delineation, drawing or profiles, and stream ordering. • Physical and cultural features correlation using Transect chart
GEOADS08T	Population Geography	5	•This course aims to inform students about various perspectives concerning the relationship between population and development. • explore demographic transition models, including their origins, processes, and spatial consequences. • gain insights into different population policies and programs aimed at sustainable population management. • develop the confidence to envision the impacts of demographic transitions on the economy, society, and politics. • acquire a comprehensive understanding of population policies and their crucial role in managing population issues towards sustainability. • Additionally, they will be equipped to comprehend and analyze various contemporary societal issues.
GEOADS09T GEOADS09P	Environmental Geography	3+2=5	•Acquire an understanding of the concept and scope of environmental geography, as well as the components of the environment, • Formulate a concept of ecosystems.• identify and explore Wet land ecosystem with special reference of East Kolkata Wet land, • Cultivate an understanding of human-environment interactions and will focus on rural, urban, ocean environmental issues, • Familiarize oneself with environmental programs, policies, and their management. • Gain insights into conducting projects focused on environmental policies and Global Initiatives of environmental managements • Students will learn how to prepare a questionnaire based on perception surveys regarding environmental issues. • The course will also illuminate students on developing concepts and preparing checklists for Environmental Impact Assessments related to the formulation of specific project lists across various sectors.
GEOADS10T	Soil and Biogeography	5	Acquire knowledge regarding the characteristics and profiles of various soil types. • Grasp the influence of humans as a significant factor in soil transformation, erosion, and degradation. • Identify land capability and categorize it accordingly. • Elucidate the Pedological and Edaphological Approaches to Soil Studies - including the processes of soil formation, classifications of soil types, and the principles of soil and land management. • Comprehend the diverse ecosystems and categorize them effectively. • Acknowledge the importance of biogeochemical cycles and the role of biodiversity. • Understand the severe consequences of deforestation. • Determine soil types and assess their pH levels. • Students should be familiar with the concepts, necessity, and techniques of soil management.
GEOADS11T GEOADS11P	Remote Sensing, GIS, and GNSS	3+2=5	Possess an understanding of the principles of remote sensing, satellites, sensor resolutions, and image referencing schemes. • Analyze satellite imagery and comprehend the process of creating false color composites from IRS-LISS III and Landsat-TM and OLI satellite images. •Receive and developing concept and knowledge of Geographic Information System (GIS) and its applicability to develop modern mapping skills. • principles of attribute table preparation, data manipulation, and overlay analysis,

			• Employ GIS techniques to transfer waypoints• Utilize Global Navigation Satellite System (GNSS) in area and length calculation. Receive training in the utilization of Geographic Information System (GIS) software to develop modern mapping skills-including georeferencing, digitisation, data attachment, overlay preparation, thematic map development etc.Preparation of FCC and other band combination required in many field now a days.
GEOADS12T	Evolution of Geographical Thought	5	• Examine the progression of geographical philosophy. • Recognize the contributions made by various thinkers in the field of Geography. • Prepare PowerPoint presentations on the diverse schools of geographical thought. • Engage in discussions regarding the development of geographical thought from ancient to contemporary periods. • Establish the connections between Geography and other disciplines, as well as the relationships between humans and their environment. • Analyze the modern and contemporary principles of Empiricism, Positivism, Structuralism, and the Human and Behavioral Approaches within Geography. • Formulate an understanding of the dualistic nature of Geography. • Cultivate an understanding of the evolution of geographical thought and disciplinary trends in Germany, France, Britain, and the United States of America. • Familiarize oneself with the trends in geographical thought across various historical eras.
GEOADS13T GEOADS13P	Hazard Management	3+2=5	• Comprehend the characteristics of hazards and disasters and their classification,• Evaluate risk, perception, and vulnerability in relation to hazards, including hazard paradigms, response, trauma, aftermath, resilence and capacity building • Create hazard zonation maps. • Analyze the nature, impact, and management of significant natural and anthropogenic hazards that influence the Indian subcontinent including- earthquake, landslide, tropical cyclone, river bank erosion and radioactive fallout. •Preparation of project report on a case study of hazards
GEOADS14T	Social Geography	5	•Students will percept the concept of space, origin and nature of social geography, • Comprehend social categories, basics of social region formation, evolution of social-cultural regions of India, people process of India, migration, social behavior, and contemporary social environmental issues.• students will learn about social wellbeing and planning , Quality of Life, Gender and Social Well-being,• they will learn social measurements Healthcare, Education, Housing, Gender Disparity,• conceptual development of social geography of inclusion and exclusion, • Learning about social planning during five year planning of India, social policies in India, • learning about social impact assessment, its concept and importance.
GEOADS15P	Surveying Techniques and fieldwork	5	• Development of the concept of bearing • Learn the usage of survey instruments like prismatic compass, dumpy level , theodolite etc. Hands on training on thematic maps, traverse survey using Prismatic compass, profile survey using dumpy level.
GEOADS16T	Hydrology and Oceanography	5	Understanding the approaches of Hydrology and hydrological cycle and its role. •Highlighting the importance of Run off, infiltration, evapotranspiration and run off cycle. •Assess the drainage basin as a hydrological unit, watershed management. Highlighting the role of ground water occurrence, storage, recharge, discharge and movement. •Investigate the properties and behaviours of the world's oceans,

			their ocean floor features, physical and chemical properties. Water mass and T_S diagram. •Recognize marine resources, coral reefs and types and causes of sea level change.
GEOADS17T GEOADS17P	Statistical Methods In Geography	3+2=5	Learn the significance of statistics in geography.Understand the importance of data in geography, data distribution, Collection and formation of statistical tables • Know about different types of sampling, need and methods of random sampling and develop an idea about theoretical distribution. • Gain knowledge about central tendency, measures of dispersion, association and correlation, regression and time series analysis and their uses in various socio- economic data. • idea development about hypothesis testing-mainly chi square and T test
GEOADS18T	Advanced Geomorphology	5	• Grasp the theories and essential principles of Geomorphology like uniformitarianism, catastrophism, actualism etc., System analysis in geography includes feedback mechanism, ideas of equilibrium, geomorphic threshold, •Formulate an understanding of the concepts of orogenic belts of Himalaya, mountain formation, plate tectonics, and the resulting landforms including metamorphism, deep basin and thrust belts. • Detailed knowledge of Tectonic geomorphology, neotectonic movements, relative and absolute dating. Morphogenetic regions with importance. • Understanding importance of the drainage basin as a geomorphic unit, associated hydraulics of stream flow. Velocity, resistant, bed and bank erosion process. • Acquiring knowledge about process and evolution of periglacial and karst process and landforms, • Acquiring knowledge about coastal morphodynamics variables, slope evolution models of King, Wood and Young, Applied and anthropogenic geomorphology focusing on emergence and relevance, geoinformatics in geomorphology, utility of satellite images and digital image model.
GEOADS19T	Regional Development and Planning	5	• Conceptual development of region its types, delineation, • learning concept of growth and development and their indicators, • understanding and studying models of regional development,• knowledge about concept of under development and its causes, and highlighting the economic and social disparity of India. • Develop an understanding of the regional planning, types, principals, objectives, techniques, requirement of regional planning in India and respective multilevel planning, •growing knowledge about metropolitan and urban agglomeration, • Appreciate the varied aspects of regional development and disparity, indicators, planning issues in formal and functional region • realize the concept of participatory planning and government.
GEOADS20T	Advanced Climatology		• To analyze the dynamics of the atmospheric temperature its distribution and temperature inversion and law of thermodynamics • knowledge about Atmospheric moisture , stability and instability, concepts of equation of pressure, gravity and coriollis, geostrophic, gradient wind, Tropical wet and dry climates, air mass, convergence and divergence, • Knowledge about mechanism of Indian monsoon Hadley cells, walker cells and ENSO phenomena, weather hazards like heat and cold waves- genesis and forcasting.

			Grasp the theories of climate changes, highlighting the climate cycle and trend, bio-climatology, synoptic climatology, urban climatology focusing on urban heat island, Acquiring knowledge about approaches and techniques of weather forecasting in India.
GEOADS21T	Rural and Urban Geography	5	• Conceptual development of rural geography, approaches of rural development- holistic development paradigm, Gandhian approach to rural development, • Perceptual development of Area-based (DPAP) and Target based (NFFWP), • acquiring knowledge about Rural Employment policies and programmes in India, PMGSY, SJSY, MNREGA, Jan Dhan Yojana, • information about 73rd Constitutional Amendment of India and its implications for governance and conceptual development of Participatory rural planning and management with reference to JFM, Watershed Management, SHGs. • Accumulation of the concepts of urban geography, approaches and recent trends of urban geography, knowledge about Origin of urban places in ancient, medieval, modern, and post-modern periods, • perceptual development of pattern of urbanisation, Patterns and trends of urbanisation in India, • exploring knowledge of Urban issues: urban poverty and crime, housing, and civic amenities