

# Department of Geography

## Programme Outcome:

### Course- Outcome of Geography Undergraduate Program

A study of Geography of the undergraduate level entails the study of Physical Geography, Human Geography, Principles/ Philosophy and Methods and Techniques. The correlation between nature and human can only be well understood through this discipline. The mapping techniques are guides to represent all the physical, social, cultural features maintaining proper scaling and elaborative description. The surveys and other projects & analysis are very helpful in carrying out a research carrier for the students. Besides this the practical course imparts training and skills of map making, field survey and research. The classroom teaching is sufficiently supplemented by the invited lectures, workshops and field excursions. With the introduction of Geo- informatics comprising techniques such as Remote Sensing, GIS, GPS etc., the capacity to attempt analysis has increased tremendously. GIS has further opened vistas of knowledge. The discipline of geography develops analytical and integrating skills, as a result of which students can venture into research organizations like Council for Social Research, World Wildlife Fund (WWF). Besides going in for traditional fields of academics and teaching, they can also get into various institutes related to Urban and Regional Planning, Environmental Planning, Population Geography, Tourism, Remote Sensing and GIS, Cartographic techniques, etc. After completion of this programme students can get ready not only for jobs but also for various research activities in India and abroad.

### Program Outcome

At the completion of undergraduate program, the students will be able to assimilate the following program outcomes.

#### 1. Knowledge outcomes:

- Demonstrate knowledge of physical and cultural features of the earth and locate them on a map.
- Know about the basic disciplines of Geography and its sub branches.
- Know the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters, composition and structure of atmosphere, hydrosphere, etc.
- Differentiate between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.
- Recognize the various contemporary issues related to disaster phenomena and environmental contexts and involves in activities that will promote in sustainable development.
- Get information about the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc.

#### 2. Skill outcomes:

- Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques.
- Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems.

- Construct various types of projections and scales as per requirement of the study.
- Collect primary and secondary data in the field.
- Apply various statistical formulas to analyse data in completion of the project.
- Use cartographic techniques with the help of simple software techniques like MS Excel.
- Handle topographical and weather maps and interpret them.
- Identify types of rocks and analyse them.
- Know about Geographical Information System (GIS) and Remote Sensing (RS) and their utility in day-to-day life.

### **Program Specific Outcome- B.Sc. Geography (Honours)**

1. Students will acquire knowledge about the various tectonic processes for the formation of present-day continents along with the features.
2. They will even come to know about the evolution of different landforms and related processes.
3. At the end of the course, students will learn to prepare their own maps on the basis of statistical data and will be able to analyse spatial data.
4. Students will also develop clear understanding of various atmospheric processes which influence our day-to-day weather patterns.
5. They will also know how to analyse statistical data.
6. They will have a clear knowledge about remote sensing and its utility. It will be very helpful in different geographic research techniques in resource management practices.
7. Students will have a clear understanding of the regional geographical approaches at the backdrop of India in general and West Bengal in particular.
8. Students will understand through the lectures the interconnection between people and places in different regions, the distribution of economic activities.
9. Understand the world-wide distribution of hazards and disasters and know the similarities and differences between natural and technological disasters.
10. Acquire the skills to use information technology to access current disaster-relevant information for assessing, planning, mitigating, responding to and recovery from disaster from local through global levels.
11. The students will be able to work with interdisciplinary dimensions of human geographical processes and their impacts and spatial aspects at different scales.
12. Developing a sustainable approach towards the ecosystem and the biosphere with a view to conserve natural systems and maintain ecological balance and understand about spatial pattern and geographic characteristics of plants and animal and their habitats.
13. Students will be able to learn about the globalisation processes and their geographical implications, transformation of cities, regions and landscapes, migration, urbanisation, rural-urban connection and land use change.
14. The students will be able to briefly analyze bivariate and categorical data and know the sequential development of probability theory, its analysis for univariate and bivariate distribution.
15. The students will get an idea about the importance of Statistics for the development of our country and how the statistical system in India works.
16. Develop and capability of observation through field experience so that the students will be able to identify the socio- environmental problems of a locality as well as will be able to analyse the problems of both physical and cultural environment.

### **Course Outcome**

## Semester I

- **C1- Geotectonics and Geomorphology (GEOACOR01T, GEOACOR01P)**
  - Students would be acquainting with the utility and application of Geomorphology in different regions and environment.
  - Understand the fundamental concepts of the Geotectonics and Geomorphology.
  - Gain knowledge about the interior structure of earth.
  - Develop an idea about the concept of plate tectonics and their resultant landforms.
  - Identification the various types of rocks, minerals and their sub types as well understand their characteristics.
  - Understanding crustal mobility and tectonics; with special emphasis on their role in landform development.
  - Understand work of denudation agents and their associated landforms and know importance and need to protect them.
  - They can also have an idea about the construction and interpretation of geological mapping.
  
- **C1- Physical Geography (GEOHGEC01T)**
  - The students will be familiar with the earth's interior.
  - Develop an idea about earth movements and the related topography.
  - Acquire knowledge about different types of rock and their origin and the influence of the rocks on land form and topography.
  - Getting familiar with the concept of hydrological cycle, ocean relief features.
  - Understanding the processes of erosion, deposition and resulting landforms.
  - Develop an idea about the planetary wind system, characteristics of monsoon and tropical cyclone.
  - Acquire knowledge about the ocean currents flowing on the various ocean of the world.
  
- **C2- Cartographic Techniques (GEOACOR02T, GEOACOR02P, GEOHGEC03T, GEOHGEC03P)**
  - Understand and prepare different kinds of maps.
  - Recognize basic themes of map making.
  - Gain knowledge about topographical maps and apply this knowledge in ground surface.
  - Develop an idea about scale and draw different types of scale like linear, diagonal and vernier and their importance in the cartography.
  - Acquire knowledge about different types of map projections and their utility in constructing the various types of map.

## Semester-II

- **C3- Human Geography (GEOACOR03T, GEOHGEC02T)**
  - Gain knowledge about major themes of human Geography

- Acquire knowledge on the history and evolution of humans.
  - Understand the approaches and processes of Human Geography as well as the diverse patterns of habitat and adaptations of different tribes.
  - Develop an idea about race and ethnicity and the difference between them.
  - Develop an idea about space, society and cultural regions of the world on the basis of religion and language.
  - Students will have a general understanding of global human population patterns, factors influencing the distribution and mobility of human populations including settlement and economic activities and networks, and human impacts on the physical environment.
  - Acknowledge the types and patterns of rural settlements as well as morphology of urban settlements.
- **C4- Cartograms and Thematic Mapping (GEOACOR04T, GEOACOR04P)**
- Comprehend the concept of scales and representation of data through cartograms.
  - Develop an idea about different types of thematic mapping techniques.
  - Uses of logarithm, antilogarithm and scientific notations in calculation of map projections and other cartographic techniques.
  - Learn the usage of survey instruments and concepts of bearing to develop surveying skills.
  - Brings direct interaction of different types of surveying instruments like Dumpy level, Theodolite and Prismatic Compass and their utilization in conducting the survey.

### **Semester-III**

- **C5- Climatology (GEOACOR05T, GEOACOR05P)**
- Understand the elements of weather and climate, different atmospheric phenomena and climate change.
  - Learn to associate the greenhouse effect and importance of ozone layer on the atmosphere.
  - To analyze the dynamics of the Earth's atmosphere and global climate. Assessing the role of man in global climate change.
  - Prepare various climatic maps and charts and interpret them.
  - Learn to use of various meteorological instruments and interpretation of daily weather map of India.
  - Learn the interaction between the atmosphere and the earth's surface and understand the importance of the atmospheric pressure and winds.
  - Understand how atmospheric moisture works.
  - Understanding the mechanism of monsoons and their characteristics.
  - Students can acquire the knowledge about the different types of climatic classification given by several geographers, viz, Koppen, Thornthwaite, Oliver etc.
- **C6- Geography of India**

- The objective of the course is to understand India in terms of physiographic divisions, their important characteristics and their formation according to various tectonic and stratigraphic provinces during different eras.
  - It is a course designed to enable students to broaden and deepen their understanding of India.
  - In depth knowledge of climate, soil, natural vegetation, agriculture, energy resources and industries of India.
  - To familiarize the students with new modern technical methods and their applications in Agricultural activities.
  - To familiarize the students with both physiographic and economic regionalisation of India.
  - To gain a vast knowledge about the physical perspectives, resources, population and regional issues of West Bengal.
  - To learn about the various regional problems of Darjeeling Hills and Sundarbans and try to resolve those issues by taking various measures.
- **C7- Statistical Methods in Geography (GEOACOR07T, GEOACOR07P)**
- Learn the significance of statistics in geography.
  - Understand the importance of use of data in geography
  - Recognize the importance and application of Statistics in Geography
  - Interpret statistical data for a holistic understanding of geographical phenomena.
  - Know about different types of sampling, need and methods of random sampling.
  - Develop an idea about theoretical distribution.
  - Learn to use tabulation of data, collection formation of statistical tables.
  - Gain knowledge about association and correlation, regression and time series analysis and their uses in various socio- economic data.
- **SEC- Remote Sensing (GEOSSEC01M)**
- Have the knowledge of the principles of remote sensing, sensor resolutions and image referencing schemes.
  - Acquire the knowledge related to sensor resolutions and their applications with reference to IRS and Landsat missions, image referencing schemes and data acquisition.
  - To prepare inventories of land use land cover features from satellite images.
  - Interpret satellite imagery and understand the preparation of false colour composites from them.

## **Semester- IV**

- **C8- Regional Planning and Development (GEOACOR08T)**
- To acquire knowledge about the concept of regional planning and development, their utilisation in different fields of geography.
  - Understand and identify regions as an integral part of geographical study.
  - Appreciate the varied aspects of development and regional disparity, in order to formulate measures of balanced development.
  - Analyzing the concept of regions and regionalization.

- Gain knowledge about definition of region, evolution and types of regional planning. Develop an idea about choice of a region for planning.
  - Build an idea about theories and models for regional development and their utility in today's world. Know about measuring development indicators.
  - Conceptualizing the idea about the need for regional planning in India.
- **C9- Economic Geography (GEOACOR09T)**
- Understand the concept of economic activity, factors affecting location of economic activity. Gain knowledge about different types of Economic activities
  - Assess the significance of Economic Geography, the concept of economic man and theories of choice.
  - Analyze the factors of location of agriculture and industries.
  - Understand the evolution of varied types of economic activities.
  - Understanding the concept of International Trade and their interrelationships with various economic blocs.
  - To familiarise the students with the factors affecting the location of economic activities related to agriculture and industry.
  - To get an idea about the various primary, secondary and tertiary activities.
  - Understanding of agricultural systems with the help of various case study.
- **C10- Environmental Geography (GEOACOR10T, GEOACOR10P, GEOGEC04T)**
- Gain knowledge about concept, scope of environmental geography and components of environment.
  - Develop an idea about human-environment relationships.
  - Build an idea about ecosystem.
  - Know about environmental programmes and policies and their management.
  - They can come to know about the preparation of the questionnaire on the basis of perception survey on environmental problems.
  - Can gain knowledge about doing the project on environmental problems.
  - The course will also enlighten students to develop the concept and preparation of the checklists for Environmental Impact Assessment related to the development of specific lists of projects under various sectors.
- **SEC- Advanced Spatial Statistical Techniques (GEOSSEC02M)**
- Students will learn about the different statistical techniques such as sampling, correlation and regression, time series analysis and different measures of Central tendency, etc.
  - They will be able to convert raw data into tabulation method with various statistical diagrams.
  - The course also aims to provide training in application of computers in analysis and synthesis of a variety of quantitative data.
  - The learners will be able to convert the various raw data into different statistical diagrams with the help of various software's such as SPSS, MS Excel, R, etc.

## Semester- V

- **C11- Field Work and Research Methodology (GEOACOR11T, GEOACOR11P)**
  - Learn the significance of field work in geographical studies.
  - Understanding the meaning and significance of fieldwork in geographical studies and identifying the various methods of conducting the survey.
  - Know about different types of field techniques and tools.
  - Develop an idea about research problems.
  - Develop skills in photography, mapping and video recording.
  - The outcome of this syllabus will be to prepare a field report project based on primary data collected from the field.
  - The topic will cover both physical and socio-economic aspects of that particular chosen area
  - Analyse the data by using different statistical techniques.
  
- **C12- Remote Sensing and GIS (GEOACOR12T, GEOACOR12P)**
  - Have knowledge of the principles of remote sensing, sensor resolutions and image referencing schemes.
  - The objective of the course is to introduce to the students the basic principles of remote sensing and the methods of digital interpretations of satellite images.
  - The course provides hands-on- training on the basic elements of GIS and its areas of applications and contemporary mapping skills.
  - Apply GIS to the preparation of thematic maps.
  - Use GNSS.
  - They can understand the GIS Data Structures and develop an idea about GIS Data Analysis.
  - Know about the application of GIS.
  
- **DSE1- Soil and Biogeography (GEOADSE01T)**
  - Have knowledge about the character and profile of different soil types.
  - Understand the impact of man as an active agent of soil transformation, erosion and degradation.
  - Recognize land capability and classify it.
  - Explaining the Pedological and Edaphological Approaches to Soil Studies - Processes of soil formation, types of soil, and principles of soil and land classification; and management.
  - Understand the varied ecosystems and classify them.
  - Recognize the significance of biogeochemical cycles and biodiversity.
  - Comprehend the devastating impact of deforestation.
  - Identify soil types and derive their pH.
  - Students should know the concept, need and methods of soil management.
  
- **DSE2- Settlement Geography (GEOADSE02T)**
  - Build an idea about urban and rural settlements, and its relationship with environment and also different theories related to settlement geography.
  - Know about classification and morphology of settlements.
  - Understand the trends and patterns of world urbanization.
  - Know about different theories of urban growth.

- **DSE3 – Population Geography (GEOADSE03T)**
  - This course intends to apprise the students about different perspectives related to population and development nexus.
  - Student shall learn about the demographic transition models, its genesis, process and consequences from spatial perspectives.
  - Students shall also understand the various population policies and programmes for the sustainable population management.
  - Students will be confident to visualise the consequences of demographic transition on the economy, society and politics.
  - They should be able to have a clear understanding of population policies and its vital role towards managing the population affairs on the path of sustainability.
  - They will also be able to understand and analyse the various contemporary issues of the society.

## Semester-VI

- **C13- Evolution of Geographical Thought**
  - Perceive the evolution of the philosophy of Geography.
  - Appreciate the contribution of the thinkers in Geography.
  - Give power point presentations on different schools of geographical thought. •
  - Discussing the evolution of geographical thought from ancient to modern times.
  - Establishing relationship of Geography with other disciplines and man-environment relationships.
  - Analyzing modern and contemporary principles of Empiricism, Positivism, Structuralism, Human and Behavioural Approaches in Geography.
  - Build an idea about the dichotomous nature of Geography.
  - Develop an idea about evolution of geographical thinking and disciplinary trends in Germany, France, Britain, and United States of America.
  - Know about the trends of geographical thoughts under different eras.
- **C14- Disaster Management (GEOACOR14T, GEOACOR14P)**
  - Students would be aware of concept of disaster and its relationship with Geography.
  - Classify various types of disasters.
  - Understand terminology and concepts used in Disaster Management.
  - Elaborate structural and non-structural measures used in Disaster Management.
  - Discuss causes, effects of disasters and locate areas on the map.
  - Differentiate global issues and describe their causes, effects and remedies.
  - To study about the different hazard study with focus on India.
  - Familiarising students to prepare and submit a project report based on different topics provided to them on any one case study of disasters of West Bengal incorporating a preparedness plan.
- **DSE4- Hydrology and Oceanography (GEOADSE04T)**
  - Analyse the concepts of Hydrology and Oceanography
  - Emphasizing the significance of groundwater quality and its circulation



- Evaluate the role of the global hydrological cycle.
  - Studying the behaviour and characteristics of the major relief features of the global ocean and origin according to plate tectonics.
  - Introduce students to the physical and chemical properties of ocean water, distribution and determinants of ocean temperature and salinity.
  - Realize the importance of water conservation.
  - Identify marine resources and characteristics of ocean waters.
  - Students will be able to understand about the types causes of sea level changing.
- **DSE5- Social Geography (GEOADSE05T)**
- Evaluate the social issues such as- racism, cast conflict, social distance.
  - Understand the causes of social inequality and their impact on society.
  - Students can understand indicators of social well-being and quality of life.
  - Discuss about the social space, social groups and intra-urban mobility.
  - Students can learn about rural settlement morphology, urban-industrial landscape.
  - Analysis the social set-up in Indian villages.
  - Students can gain knowledge about the various contemporary issues related to the society.
  - They can also get a better understanding of the concept of social well-being and planning.
- **DSE6 – Resource Geography (GEOADSE06T)**
- Analyze the contemporary energy crisis and assess the future scenario
  - Understand the concept of Limits to Growth, resource sharing and sustainable use of resources.
  - Analyze the decadal changes in state-wise production of coal and iron ore
  - Learn about the various resource conflicts and their management with special reference mineral resources and energy resources.
  - To learn about the significance of resources in the economic growth and development of a country.
  - It also aims to create an awareness amongst the students about the idea of sustainable use of resources.
- **DSE4- Project Report based on Field Work (GEOGDSE04P)**
- Learn the significance of field work in geographical studies.
  - Understanding the meaning and significance of fieldwork in geographical studies and identifying the various methods of conducting the survey.
  - The outcome of this syllabus will be to prepare a field report project based on primary data collected from the field.
  - The topic will cover both physical and socio-economic aspects of that particular chosen area
  - Analyse the data by using different statistical techniques.

