

BARASAT COLLEGE
UNDER GRADUATE DEPARTMENT OF GEOGRAPHY
CBCS Syllabus (With effect from 2018-19)

PROGRAM OUTCOMES

After successful completion of the UG course in Geography students will be able to:

- To understand the scope and gradual evolution of the subject.
- Helps to acknowledge the varied sources of knowledge, and synthesize and evaluate arguments and approaches relevant to the exploring of human-environment problems.
- Explain societal pertinence of geographical knowledge and apply it to real world human- environment scenarios.
- Appreciate and critically reflect on the importance of comprehensive and interpretative human- environment perspectives.
- Identification and acknowledgment of the threats that poses as threat to the earth's natural systems. This helps in further awareness of the significance of anthropogenic causes of many of the disasters and threats that puts life on this planet on the edge.
- Enables to attain a wider perspective about the environment and human societies. Also enhances development of knowledge, skills and an all-over understanding of the subject among the students.
- Students are encouraged to develop a scientific mode of thinking and also enquire following a scientific method. This goal is achieved through the regular field excursions conducted by the Department to various parts of India extensively and the writing of a report on it.
- Students attain the ability to respond to both natural and man-made disasters and acquire effective management skills. This is attained through a thorough ensuing of the curriculum by studying and analyzing hazards, disasters, their impact and management.
- Provides knowledge and transferable skills – in relevance to Statistical methods, Remote Sensing and GIS- that tend to help the students personally, academically as well as professionally.
- Helps students to obtain the ability to undertake research in interdisciplinary studies and also deal with issues beyond the realm of that under the direct purview of geography. This is possible because of the diverse nature of the curriculum that encompasses the study and analyses concepts of sub-disciplines and allied disciplines of Geology, Seismology, Pedology, Hydrology, Environmental Studies, Disaster Management, Resource Management and Conservation, Regional Planning and Development Studies etc.

CBCS Curriculum for Geography Honours

SEM- I

COURSE- GEOACOR01T – Geotectonics and Geomorphology

UNIT- I: GEOTECTONICS

1. Learn about earth's structural and tectonic history, its evolution, processes involved and dynamism through the passage of time since the beginning.
2. Gain knowledge about earth's interior structure and its dynamism as it is the core cause of earth's tectonic movements, isostatic adjustment, and landform development
 - 3.1 Learns about nearly all of Earth's major surface features and activities.
 - 3.2 Explains connections between seemingly unrelated geologic phenomena.
 - 3.3 Permits Earth's history to be viewed as series of interrelated events.
- 3.4 Explains how plate interactions determine locations of continents, mountain ranges, and ocean basins, and thus affect atmospheric and oceanic circulation patterns that control climate.
- 4.1 Students will learn how stress and strain create more complex geological structures, and also how to interpret geological maps that display folded and faulted structures, as well as unconformities.

Unit II: Geomorphology

5. To identify different minerals and rocks.
6. To know how to interpret the Geological maps with unconformity and intrusions on unclinal and folded structure.
7. Describe the development of landforms on granites, basalts and limestones.
8. Students are given a clear idea of different coastal processes and landforms
9. Students acquire knowledge about different types of glacial and glacio-fluvial Processes and landforms.
10. Students are taught aeolian and fluvio-aeolian processes and associated landforms.
11. To learn the Models on landscape evolution and be able to differentiate among them.

GEOACOR01P – Geotectonics and Geomorphology

- 1.1. Identify different minerals and rocks.
- 1.2. Memorize the different mineral composition of the different rocks.
- 1.3. Distinguish between igneous rock and sedimentary rock.
2. To learn interpreting the Geological maps with unconformity and intrusions on unclinal and folded structure.

GEOACOR02T – Cartographic Techniques

1. To learn about maps, their components, types and usage.
- 2.1 Enables students to provide a geographical analysis to a specific surface feature on the map. The analysis explains the significance of the land feature and the distance between landmarks.
- 2.2 Teaches students that scales in map increases anyone's knowledge about the geographic details of an object, scene, or a geographical position.
- 2.3 Recognition of different types of scales and their applications even in instruments.
3. Students are introduced to the reference scheme of old and open series topographical map of Survey of India and also, it's marginal information.
- 4.1. Acquire knowledge on the coordinate system of the earth and learn to measure linear and angular distance of points on earth.
- 4.2. Gain knowledge on different aspects of map making.
- 4.3. To learn about different map projections and their applicability in map making.

GEOACOR02P – Cartographic Techniques (Lab)

1. Graphically construct plain, comparative, diagonal and vernier scales.
2. Hands on training on preparing maps based on different projection methods.
3. Students are given a clear idea of topographical map with its drainage basin delineation. Construction of different types of relief profiles like superimposed, projected and composite profile with interpretation. Construct and interpret relative relief map, slope map and order streams on drainage basin.
4. Students will be able to understand and draw the correlation between physical and cultural features from Survey of India topographical maps.

GEOACOR03T – Human Geography

Unit 1. Nature and Principles

1. Learn about the evolutionary development of the subject matter of Human Geography.
2. To gain knowledge about the various approaches to Human Geography and different perspectives of man nature relationships.
3. Different theories on the origin of human races and ethnicity with their diversifications
4. Different aspects of human civilization and its relation to space.

Unit: II: Society, Demography and Ekistics

5. Explain Evolution of human societies.
6. Recognize the Human adaptation to environment with reference of different tribes.
7. To study the global and Indian experience with population growth and distribution, composition; to learn the applicability of Demographic Transition Model.
8. To learn about the Population–Resource regions as proposed by Ackerman.
9. &10. Students will learn the types, patterns and morphology and related models of rural and urban settlements specifically with reference to India.

GEOACOR04T – Cartograms and Thematic Mapping

1. Concepts of rounding, scientific notation, logarithm and anti-logarithm, natural and log scales.
2. Students will be able to learn about different types of diagrams like line, bar, isopleths and their representation.
3. Students will be able to understand thematic maps: choropleth, dots and spheres, pie.
4. & 5. Identify the different features from land use land cover maps and know the preparation and interpretation of socio-economic maps.
6. &7. After completion of this topic students will be able to perform profile survey using dumpy level and open and closed traverse survey using prismatic compass and to get familiarize with theodolite.

GEOACOR04P – Cartograms and Thematic Mapping

1. Students will be able to draw thematic maps like Choropleth showing density of population, Dots and Spheres diagram showing distribution of rural and urban population. Proportional pie-diagrams representing economic data and land use data.
2. After completion of this topic students will be able to perform profile survey using dumpy level and open and closed traverse survey using prismatic compass.

GEOACOR05T – Climatology

Climatology: Unit 1. Elements of the atmosphere

1. Acquire knowledge about different elements of the atmosphere and their role in creating various atmospheric phenomenon.
2. & 3. Understand the factors controlling temperature on earth's surface and phenomena related to the horizontal and vertical distribution of temperature.
4. Learn about various pollutants present in the atmosphere and their role in local and global climate change

Unit II: Atmospheric Phenomena and Climatic Classification

5. To understand how atmospheric moisture works: the process of condensation and precipitation.
6. & 7. Detailed study of the air mass and Fronts.
- 8.1 Learns about the stability and instability of Barotropic and Baroclinic conditions.
- 9.1 Teaches students about the planetary wind system and why air moves in a certain direction around an area of low pressure, and why planetary winds exist.
- 9.2 Learns about the origin and life cycle of jet streams and how they influence the planetary wind system.
- 11.1 Enables students to understand the mechanism of Monsoons and monsoon circulation and its impact on the Indian climate.
- 11.2 Provides an understanding of the vagaries of monsoon and the influence of rainfall on agriculture in the Indian Sub-continent.
- 12.1 Learn different approaches to Climatic classifications and the climatic regions.

GEOACOR05P – Climatology

1. Students will be able to learn drawing and interpreting daily weather map of India: Pre-Monsoon, Monsoon and Post-Monsoon seasons.
2. Hands on training on generation of climatic data to represent various man and climate relationship, construction of graph and interpretation.
3. Students will be able to Construct and interpret wind rose diagram.

GEOACOR06T – Geography of India

1. & 2. To understand detailed physical features and of India such as: physiography, climate, soil, vegetation.
3. & 4. To understand about demographic and ethnographic (i.e., different tribes of India) characteristics of India.
5. &6. &7. Learn about the spatial variation in agricultural and minerals resources and industrial development.

8. To know about various schemes of physical and economic regionalisations of India.

Unit II: Geography of West Bengal

9. Students will be able to Know about the physical perspectives, forest, water, economic resources of West Bengal.

10. They will understand the economic resources like agriculture, mining, industry of West Bengal.

11. They will understand the population characteristics like population growth, distribution and human Development.

12. They are taught about different regional issues (Darjeeling Hills and Sunderban) of West Bengal.

GEOACOR07T – Statistical Methods in Geography

After successful completion of this course students will be able to:

Unit I: Frequency Distribution and Sampling

1. State the significance of statistics in geography and explain the importance of the use of data in geography.
2. Demonstrate the theoretical distribution and scales of measurement.
3. Construct the different statistical table.
4. Interpret the distribution of different statistical data.
5. To learn about the need, types, and significance Sampling.
6. To study the different type of theoretical distribution.
7. To enable students to understand that the purpose of the central tendency is to provide an exact representation of the entire collected data.
8. To understand why the knowledge of dispersion is vital in the understanding of statistics.
9. & 10. & 11. Gain knowledge about the correlation, regression and time series analysis.

GEOACOR07P – Statistical Methods in Geography (Lab)

- 1 & 2. Learn to construct data table and compute and interpret frequency table, measures of central tendency and dispersion.
3. TO get an idea about random, systematic and stratified methods of sampling and locating the samples on a map.
4. Learn to compute and interpret scatter diagram, correlation and regression.

GEOACOR08T – Regional Planning and Development

Unit I: Regional Planning

1. Understand and identify regions as an integral part of geographical study
2. & 3. Learn about different aspects of planning and theories for regional development
4. Learn the importance of urban agglomerations and specifically the impact created by the metropolises on the holistic development of a region.

Unit II: Regional Development

5. & 6. & 7. Learn the concepts of growth, development, various indicators & methods of measuring development as well as human development
8. & 9. Gain critical knowledge about the theories and models for regional development.
10. & 11. 12. Study the status of regional development in India and measures taken for balanced regional development.

GEOACOR09T — Economic Geography

Unit I: Concepts

1. Students will be able to learn the meaning and approaches to Economic Geography.
2. They are taught Concepts in Economic Geography like Goods and services, production, exchange and consumption.
3. They understand the concept of economic man, theories of choices
4. They are taught Economic distance and transport costs

Unit II: Economic Activities

5. 7. 8. 9. To study in detail the various type of economic activities.
6. They will learn the theories explaining the factors controlling location of agriculture and industry.
11. they will be able to understand Transnational sea-routes, railways and highways with reference to India.
12. they are taught international trade and economic blocs: WTO, GATT and BRICS: Evolution, structure and functions

GEOACOR10T—Environmental Geography

After successful completion of this course students will be able to:

1. Explain the different concepts, scope of environmental geography.
2. State the Geographers' approach to environmental studies.
3. Develop an idea about space time hierarchy of environmental problems.

4. Classify different component of ecosystem.
5. Explain the basic ecological principles.
6. Build an idea about current environmental issues like pollution, waste management etc.

GEOACOR10P—Environmental Geography

1. Prepare questionnaire for perception survey on environmental problems.
2. Develop concepts and skills regarding preparation of check list for Environmental Impact Assessment.
3. Develop skills regarding interpretation of air quality using secondary data sources.

GEOACOR11T – Fieldwork and Research Methodology

Unit I: Research Methodology

1. To have an idea about conducting research in Geography: types, significance and stages of conducting research.
2. To gain knowledge about research materials and methods.
3. To learn the techniques of writing scientific reports.

Unit II: Fieldwork

After successful completion of this course students will be able to:

1. Identify the significance of field work and research in geographical studies.
2. Know about different types of field techniques and develop ideas about research design, problems.
3. Understand the field ethics and different tools of field study.
4. Conduct field work on physical and socio-economic aspects of geographical landscapes.
5. Prepare field report with suitable tables, maps and diagrams based on collected data and to represent the realities of the study area.
6. Students will be able to learn about the Field techniques and tools: Observation (participant, non-participant), questionnaires (open, closed, structured, non-structured) and Interview.
7. They are taught about Positioning and collection of samples. Preparation of inventory from field data.

GEOACOR11P – Fieldwork and Research Methodology (Lab)

Conducting field work in physical and socio-economic aspects of an unique geographical landscape and to prepare field report with suitable tables, maps and diagrams based on

collected data in order to represent the physical, socio-economic and demographic characteristics of the study area.

GEOACOR12T – Remote Sensing and GIS

Unit I: Remote Sensing

- Have knowledge on basic principles of remote sensing system, sensor resolutions and Image referencing schemes of different satellite system
- Comprehend the interpretation of Satellite Imageries.

Unit II: Geographical Information Systems and Global Navigation Satellite System

- Students will learn the concept of GIS: components, data type and its applicability
- They will also be provided with the basic knowledge of spatial analysis.
- Students will learn about positioning techniques based on Global Navigation Satellite Systems (GNSS) such as Global Positioning System (GPS), cellular network infrastructure or on the integration of the two technologies for a wide spread of applications such as Automatic Vehicle Location (AVL), etc.
- They will also learn to collect waypoints and calculate area and length through GIS.

GEOACOR12P – Remote Sensing and GIS

- To prepare FCC and identification of features.
- To learn georeferencing, digitising features and attach data.
- To perform overlay analysis and prepare annotated thematic maps

GEOACOR13T – Evolution of Geographical Thought

Unit I: Nature of Pre Modern Geography

- 1.1 Helps students to identify the evolution of the philosophical thoughts of Geography/ Earth Science and the major contributors.
- 1.2 Provides an idea of the impact of the Dark Age in Geography.
- 1.3 Helps to analyse the evolution of Geography during the age of 'Discovery' or 'Exploration'.
- 1.4 Understand how the dualism and dichotomies played a pivotal role in diversification and branching of the subject matter of geography

Unit II: Foundations of Modern Geography and Recent Trends

5. & 6. 7. Learn about the evolutionary building up of the subject and contributions made by different scholars and schools of thought.
8. & 9. & 10. Evolution of different schools of geographical thought through time starting from WW-II through modern to postmodern times.

GEOACOR14T – Disaster Management

Unit I: Concepts

After successful completion of this course students will be able to:

1. Identify the different types of hazards and disaster.
2. Explain the approaches to hazards study.
3. Describe the human responses to the hazards.
4. State the method of Hazards mapping.

Unit II: Hazard-specific Study with focus on India

Learn about different types of natural and quasi -natural disasters that are common in India; factors responsible for their occurrence, consequences and different long term and short-term measures taken to mitigate their impact on the civilization

GEOACOR14P – Disaster Management

Write a report on disaster on any one case study on disasters of West Bengal incorporating a preparedness plan.

GEOADSE01T– Soil and Biogeography

Unit I: Soil Geography

After successful completion of this course students will be able to:

1. State the factors of soil formation.
2. Explain the soil profiles of different climatic regions.
3. Recognize the different texture, structure and soil moisture condition.
4. Describe the physical and chemical properties of soil.
5. Describe soil erosion and degradation and soil classification.

Unit II: Biogeography

- To learn about the concept of biosphere, eco system and other terms related to Ecology.

- To study the spatial distribution of flora and fauna.
- To know about the various measures for conservation of bio-diversity in India

GEOADSE02T –Settlement Geography

- Acquire knowledge about settle geography
- To learn about the rural settlements- Definition, nature and characteristics ☒
- Analyze the morphology of rural settlements ☒
- Learn the rural house types, census categories of rural settlements and idea of social segregation.
- Students will be able to learn about Urban Settlements and also the Census definition (Temporal) and categories in India.
- They are taught the morphology of urban settlement and the Classical models of Burgess, Homer Hoyt, Harris and the concept of Ullman Metropolitan.
- They will be able to learn about the concept of City-region and Conurbation and the Functional classification of cities, mainly Harris, Nelson and McKenzie’s classification.
- Students are introduced to the Aspects of urban places like Location, site and situation, Size and spacing of cities, the rank size rule and the law of the primate city
- They are taught the Urban hierarchies, Central Place Theory; August Lösch’s theory of market centers.

GEOADSE03T – Population Geography

- Understand the development of Population Geography acquires knowledge of population data.
- Analyse what factors influence human population density and growth the most and learn the theories related to it.
- Know about the growth, density and distribution of Indian and world population.
- learn to measure and analyse the resource potential of population on both global and Indian perspective
- get a brief idea on different population policies of both developed and less developed countries and their implications on the overall growth and environment.
- Acquire knowledge on various contemporary issues related to population studies.

GEOADSE04T – Hydrology and Oceanography

- Students can comprehend the concept of hydrological cycle and its importance in hydrology.

- They will know the concept of different hydrological processes: infiltration, evapotranspiration and run off.
- They will study drainage basin as a hydrological unit, principles of water harvesting and watershed management
- students can understand the factors controlling ground water recharge, discharge and movement.
- Teaches students about the major relief features of the bottom topography of oceans.
- Enables students to assess the physical and chemical properties of ocean water and also provides detailed understanding of water mass and T-S diagram.
- Helps to gain knowledge about marine resources with its classifications and sustainable utilization.
- Provides a clear concept of global and regional sea level change.

GEOADSE05T – Social Geography

After successful completion of this course students will be able to:

- State the Concept, Origin, Nature and Scope of social geography.
- Describe the Distribution of Caste, Class, Religion, Race and Gender.
- Explain the concept of space, social differentiation and stratification, social processes.
- Learn about Basis of Social region formation; Evolution of social-cultural regions of India.
- Gain knowledge about Peopling Process of India.
- Understand the Social groups, social behaviour and contemporary social environmental issues with special reference to India.
- Learn about Concept of Social Well-being, Quality of Life, Gender and Social Well-being.
- Explain the Measures of Social Well-being: Healthcare, Education, Housing, and Gender Disparity.
- Learn about Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.
- Describe Social Planning during the Five-Year Plans in India.
- Gain knowledge about Social Policies in India: Education and Health.
- Explain Social Impact Assessment (SIA): Concept and importance.

GEOADSE06T – Resource Geography

After successful completion of this course students will be able to:

- Students will be able to understand the Concept and classification of natural

resources.

- Students are introduced to the different approaches to Resource Utilization like Utilitarian, Conservational, Community based adaptation.
- Students will be able to learn about the Significance of Resources and also the Backbone of Economic growth and development.
- They are taught about the Pressure on resources, Appraisal and Conservation of Natural Resources.
- Students will be able to understand the Problems of resource depletion and its global scenario (forest, water, fossil fuels).
- They will also be able to understand the Sustainable Resource Development.
- State the Distribution, Utilisation, Problems and Management of Mineral Resources.
- Describe the Distribution, Utilisation, Problems and Management of Energy Resources.
- Identify the Distribution, Utilisation, Problems and Management of Energy Resources.
- Recognize the. Limits to Growth and Sustainable Use of Resources.
- Explain the Concept of Resource sharing with reference of Water resource.

CBCS Curriculum for Geography General

GEOGCOR01T– Physical Geography

- Understand the basic concept, definition and scope of physical geography
- Learn Internal Structure of Earth based on Seismic Evidence, Plate Tectonics and its associated Features.
- Understand the Influence of rocks on topography: Limestone and Granite.
- Learn the Evolution of landforms under fluvial process and Normal Cycle of Erosion of Davis
- Understand the formation of erosional and depositional landforms by coastal and aeolian processes.
- To learn about the insolation and heat balance.
- To understand the Horizontal and Vertical distribution of temperature.
- Learn about pre-monsoon, post-monsoon and cyclonic features.
- Learn different approaches to climate classification and climatic regions.
- Explain the Hydrological Cycle.
- State the Ocean Bottom Relief Features and ocean currents.

GEOGCOR02T – Human Geography

After successful completion of this course students will be able to:

- State the factors of Growth and distribution of world population.
- Explain the Demographic Transition Theory.
- Describe the World Population Composition.
- Classify the causes and consequences of migration.
- State the Cultural Regions, Race, Religion and Language.
- Identify the problems of Illiteracy and Poverty.
- Different Sectors of the economy: primary, secondary, tertiary and quaternary
- Different types of agriculture like Intensive subsistence rice farming, Plantation agriculture (Tea and Coffee).
- The location, problems and prospects of Indian industries mainly Cotton textile, Petroleum refining, Locomotive.
- Types and Patterns of Rural Settlements.
- Classification of Urban Settlements and Trends and Patterns of World Urbanization.

GEOGCOR03T&GEOGCOR03P – General Cartography

- Comprehend the concept of scale and learn to measure distance on map
- Students will be able to learn about the Representation of Data – Symbols, Dots, Choropleth, Isopleth and Flow Diagrams, Interpretation of Thematic Maps.
- Learn the need and application of Map Projection.
- Enable students to calculate and draw different types of Map Projections.
- Learn about reference scheme of old and open series topographical map of survey of India.

GEOGCOR04T – Environmental Geography

- To learn about concepts and scope of environmental geography.
- Can know how human can adopt in different environmental conditions.
- Know about the concept of Holistic environment and system approaches.
To learn about the concept of ecosystem: structure and functions.
- To study about various environmental problems and their management.
- Learn about the environmental Programmes and Policies in Developed Countries vs. Developing Countries and the New Environmental Policy of India.

GEOGDSE01T – Soil and Biogeography

- Acquire knowledge on different types of soils and the processes responsible for their formation and profile development.
- Learn about physical and chemical properties of soil and their significance.
- Understand the genetic soil classification and U.S.D.A soil taxonomy.
- To gain knowledge on various concepts of biogeography, i.e., biosphere, ecosystem, biome, ecotone, community, niche and succession, food chain and food web and energy flow in ecosystems.
- To study geographical extent and characteristic features of Biomes.
- To understand how Bio-geochemical cycles function with special reference to carbon dioxide and nitrogen cycles.

GEOGDSE04P – Project Report based on Field Work

Learn to integrate assimilate and implement the knowledge acquired in the class through field report preparation and presentation.

GEOSSEC01M – Remote Sensing

After successful completion of this course students will be able to:

1. State the principles of remote sensing.
2. Compare the different remote sensing satellites and sensors.
3. Explain the Sensor resolutions and their applications with reference to IRS and Landsat missions, image referencing schemes and data acquisition.
4. Identify and analyse the spatial features using Remote Sensing Technology.
5. Prepare the map of land use land cover features from satellite images.

GEOSSEC02M – Advanced Spatial Statistical Techniques

Students will learn the basics of any statistical Software Package (e.g., SPSS, MS Excel, R, etc.) and the following statistical analyses using the software:

The Probability theory, probability density functions distributions, Sampling, Correlation and Regression Analysis, Introduction to multi-variate analysis and Time Series Analysis.