- **DEPARTMENT OF GEOGRAPHY: COURSE OUTCOME/PROGRAMMEOUTCOME/ PROGRAMME SPECIFIC OUTCOME:** 2021-22

GEO-A-CC-1-TH

- Understanding Earth's tectonic and structural evolution with reference to geological time scale
- Knowledge about Earth's interior with special reference to seismology and Isostasy.
- Understanding Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate
- margins and hotspots .
- Understanding origin and types Folds and Faults.
- Unit II: Geomorphology
- Gain knowledge about degradational processes: Weathering, mass wasting, and resultant landforms
- Understanding processes of entrainment, transportation, and deposition by different geomorphic
- agents. Role of humans in landform development
- Explaining Development of river network and landforms on uniclinal and folded structures. Surface
- expression of faults
- Understanding Development of river network and landforms on granites, basalts and limestones [4]
- Understanding Coastal processes and landforms
- Understanding Glacial and glacio-fluvial processes and landforms
- Understanding Aeolian and fluvio-aeolian processes and landforms
- Explaining Role of time in geomorphology: Schumm and Lichty's model. Models on landscape
- evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach

GEO-A-CC-1-01-P – Geotectonics and Geomorphology practical

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- Measurement of dip and strike using clinometer
- Megascopic identification of (a) *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) *rock samples*: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble
- Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite). Delineation of drainage basins. Construction of relative
- Relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5')
- Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin (c. 5' x 5') from Survey of India 1:50k topographical maps of plateau region.

GEO-A-CC-1-02-TH – Cartographic Techniques

- Understanding Maps: Components and classification
- Develop Concept and application of scales: Plain, comparative, diagonal and Vernier
- Understanding Coordinate systems: Polar and rectangular
- Concept of generating globe
- Understanding Grids: Angular and linear systems of measurement
  Bearing: Magnetic and true, whole-circle and reduced
- Understanding Concept of geoid and spheroid with special reference to Everest and WGS-84
- Develop Map projections: Classification, properties and uses
- Develop Concept and significance of UTM projection
- Representation of data using dots, spheres and divided proportional circles
- Representation of data using isopleth, choropleth, and chorochromatic maps
- Gain knowledge about Survey of India topographical maps: Reference scheme of old and open series.

GEO-A-CC-1-02-P – Cartographic Techniques practical

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- Construction of scales: Plain, comparative, diagonal and Vernier
- Construction of projections: Polar Zenithal Stereographic, Simple Conic with one
- standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's
- Thematic maps: Proportional squares, pie diagrams with proportional circles, dots and
- spheres
- Developing Thematic maps: Choropleth, isopleth, and chorochromatic maps

GEO-A-CC-2-03-TH – Human Geography

- Analysing Nature, scope and recent trends. Elements of human geography
- Explaining Human Geography: Resource, locational, landscape, environment
- classifying race and Ethnicity
- Understanding Space, society, and cultural regions (language and religion)
- Unit II: Society, Demography and Ekistics
- Understanding Evolution of human societies: Hunting and food gathering, pastoral nomadism,
- subsistence farming, and industrial society
- Explaining Human adaptation to environment: Case studies of Eskimo, Masai and Maori
- Analysing Population growth and distribution, composition; demographic transition
- Understanding Population–resource regions (Ackerman)
- Analysing Development–environment conflict
- Types and patterns of rural settlements
- Understanding Rural house types in India
- Understanding Morphology and hierarchy of urban settlements

GEO-A-CC-2-03-P – Human Geography practical

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- Bringing out Spatial variation in continent- or country-level religious composition by divided proportional circles [12]
- Measuring arithmetic growth rate of population comparing two decadal datasets
- Graphical representation and analysis of Types of age-sex pyramids (progressive, regressive, intermediate, and stationary):
- 4.Analysing Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5' x 5')

2.7 GEO-A-CC-2-04-TH – Thematic Mapping and Surveying

- Developing Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales
- Developing Concept of diagrammatic representation of data
- Preparation and interpretation of geological maps
- Preparation and interpretation of weather maps
- Preparation and interpretation land use land cover maps
- Preparation and interpretation of socio-economic maps
- Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP,
- NHO, and NRSC / Bhuvan
- Developing Basic concepts of surveying and survey equipment: Prismatic compass
- Developing Basic concepts of surveying and survey equipment: Dumpy level , Theodolite, Abney level and Laser distance measurer

GEO-A-CC-2-04-P – Thematic Mapping and Surveying practical

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- Knowledge about Traverse survey using prismatic compass
- Knowledge about Profile survey using dumpy Level
- Height determination of base accessible and inaccessible (same vertical plane method)
- objects by theodolite
- Interpretation of geological maps with uniclinal structure, folds, unconformity, and Intrusions

GEO-A-CC-3-05-TH – Climatology

- Understanding the nature, composition and layering of the atmosphere.
- To learn Insolation: Controlling factors. Heat budget of the atmosphere.
- Knowledge about temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences.
- Knowledge about on Overview of climate change: Greenhouse effect. Formation, depletion, and significance of the ozone layer.

- To learn about the condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation .
- Knowledge about air mass: Typology, origin, characteristics and modification ‘
- To learn about fronts: Warm and cold, frontogenesis, and frontolysis .
- Understanding Weather: Stability and instability, barotropic and baroclinic conditions .
- Knowledge about circulation in the atmosphere: Planetary winds, jet streams, index cycle .
- Understanding atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms .
- Developing knowledge about monsoon circulation and mechanism with reference to India .
- To learn about climatic classification after Thornthwaite (1955) and Oliver .

GEO-A-CC-3-05-P – Climatology Lab

- To learn the measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, and rainfall .
- To learn about Interpretation of a daily weather map of India (any two): Pre-Monsoon, Monsoon, and Post-Monsoon .
- Gaining knowledge about construction and interpretation of hythergraph and climograph (G. Taylor) [15]
- To learn construction and interpretation of wind rose .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-3-06-TH – Hydrology and Oceanography

- Understanding systems approach in hydrology. Global hydrological cycle: Its physical and biological role
- Gain knowledge about run off: controlling factors. Infiltration and evapotranspiration. Run off cycle .
- Learn about drainage basin as a hydrological unit. &principles of water harvesting and watershed management.
- Understanding about groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement .
- Gain knowledge about major relief features of the ocean floor: Characteristics and origin according to plate tectonics .
- Learn about physical and chemical properties of ocean water .
- Developing knowledge about water mass, T–S diagram .
- Understanding Air-Sea interactions, ocean circulation, wave and tide .
- To learn about Ocean temperature and salinity: Distribution and determinants .
- Gain knowledge about Coral reefs: Formation, classification and threats .
- To learn Marine resources: Classification and sustainable utilisation .
- Understanding Sea level change: Types and causes .

GEO-A-CC-3- 06-P – Hydrology and Oceanography Lab

- To learn about construction and interpretation of rating curves .
- Developing knowledge about construction and interpretation of hydrographs and unit hydrographs .
- Learn about construction and interpretation of monthly rainfall dispersion diagram (Quartile method), Climatic water budget and Ergograph .
- Learn about construction of Theissen polygon from precipitation data .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-3-07-TH – Statistical Methods in Geography

- Learn about importance and significance of statistics in Geography .
- Developing knowledge on discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) .
- Gain knowledge about sources of geographical data for statistical analysis .
- Collection of data and preparation of statistical tables .
- Learn about sampling: Need, types, significance, and methods of random sampling .
- Understanding theoretical distribution: Frequency, cumulative frequency, normal, and probability .
- Developing knowledge about central tendency: Mean, median, mode, and partition values .
- Learn the measures of dispersion range, mean deviation, standard deviation, and coefficient of variation .

- Developing knowledge about association and correlation: Product moment correlation and rank correlation,
- Learn about regression: Linear and non-linear .
- Learn the time series analysis: Moving average .
- Knowing hypothesis testing: Chi-square test and T-test .

GEO-A-CC-3-07-P – Statistical Methods in Geography Lab

- Learn about construction of data matrix with each row representing an aerial unit (districts / blocks /*mouzas* / towns) and corresponding columns of relevant attributes .
- Developing knowledge based on the above, a frequency table, measures of central tendency, and dispersion would be computed and interpreted using histogram and frequency curve.
- Developing knowledge from the data matrix, a sample set (20%) would be drawn using random, systematic, and stratified methods of sampling and the samples would be located on a map with an explanation of the methods used .
- Developing knowledge based on the sample set and using two relevant attributes, a scatter diagram and linear regression line would be plotted and residual from regression would be mapped with a short interpretation .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-4-08-TH – Economic Geography

- Learn the meaning and approaches to economic geography .
- Developing concepts in economic geography: Goods and services, production, exchange, and consumption .
- Developing concept of economic man. Theories of choices .
- Learn about economic distance and transport costs .
- Developing concept and classification of economic activities .
- Learn about factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber) .
- Developing knowledge on primary activities: Agriculture, forestry, fishing, and mining .
- Developing concept on secondary activities: Classification of manufacturing, concept of manufacturing regions, special economic zones and technology parks .
- Developing concept about tertiary activities: Transport, trade and services .
- Knowledge about transnational sea-routes, railways and highways with reference to India .
- Learn about international trade and economic blocs .
- Knowledge construction about WTO and BRICS: Evolution, structure and functions .

GEO-A-CC-4-08-P – Economic Geography Lab

- Construction and analysis of choropleth mapping of state-wise variation in GDP .
- Construction the proportional divided circles to show State-wise variation in occupational structure by .
- Developing knowledge on Time series analysis of industrial production (India and West Bengal) .
- Construction detour index and shortest path analysis to show transport network analysis .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-4-09-TH – Regional Planning and Development

- Developing concept about regions, types and delineation .
- Learn about regional Planning: Types, principles, objectives, tools and techniques .
- Learn about regional planning and multi-level planning in India .
- Knowledge about developing concept of metropolitan area and urban agglomeration .
- Developing concept of growth and development, growth versus development .
- Learn about indicators of development: Economic, demographic, and environmental .
- Developing knowledge on human development: Concept and measurement .
- Learn theories and models for regional development: Cumulative causation (Myrdal) .
- Understanding models and theories in regional development: Stages of development (Rostow), growth pole model (Perroux) .
- Developing knowledge about underdevelopment: Concept and causes .
- Learn about regional development in India: Disparity and diversity .
- Need and measures for balanced development in India .

GEO-A-CC-4-09-P – Regional Planning and Development Lab

- Developing knowledge on delineation of formal regions by weighted index method .
- Developing concept of delineation of functional regions by breaking point analysis .
- Developing knowledge about measurement of inequality by location quotient .
- Learn about measuring regional disparity by Sopher index .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-4-10-TH – Soil and Biogeography

- Learn the factors of soil formation .
- Knowing about definition and significance of soil properties: Texture, structure, and moisture .
- Developing knowledge about definition and significance of soil properties: pH, organic matter, and NPK .
- Understanding soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils .
- To learn about soil erosion and degradation: Factors, processes and management measures.

Humans as active agents of soil transformation .

- Gaining knowledge about principles of soil classification: Genetic and USDA. Concept of land capability and its classification .
- Learn about concepts of biosphere, ecosystem, biome, ecotone, community and ecology .
- Learn about concepts of trophic structure, food chain and food web. Energy flow in ecosystems .
- Understanding Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes .
- Gain knowledge about bio-geochemical cycles with special reference to carbon dioxide and nitrogen .
- Understanding causes of deforestation, consequences and management .
- Learn about biodiversity its definition, types, threats and conservation measures .

GEO-A-CC-4-11-P – Soil and Biogeography Lab

- Learn about determination of soil reaction (pH) and salinity using field kit .
- Knowledge about determination of soil type by ternary diagram textural plotting.
- Anlyse plant species diversity determination by matrix method .
- Learn about time series analysis of biogeography data .
- Viva-voce based on laboratory notebook (5 Marks)

GEO-A-CC-5-11-TH – Research Methodology and Fieldwork

- Understanding the meaning, types and significances of research in geography.
- To learn literature review and formulation of research design.
- To learn how to defining research problem, objectives and hypothesis.
- Knowledge about the research materials and methods.
- To learn techniques of writing scientific reports: Preparing notes, references, bibliography, abstract, and keywords
- Understanding plagiarism: Classification and prevention
- Gain knowledge about the fieldwork in Geographical studies: Role and significance. Selection of study area and objectives. Pre-field academic preparations. Ethics of fieldwork.
- Apprehension of field techniques and tools: Observation (participant, non-participant), questionnaires (open, closed, structured, non-structured). Interview
- Understanding field techniques and tools: Landscape survey using transects and quadrants, constructing a sketch, photo and video recording.
- To analyse the positioning and collection of samples. Preparation of inventory from field data
- To learn Post-field tabulation, processing and analysis of quantitative and qualitative data
- fieldwork: Logistics and handling of emergencies
- Knowledge about

GEO-A-CC-5-11-P – Research Methodology and Fieldwork

- Perception and comprehension about the research methodology & filed work.

GEO-A-CC-5-12-TH – Remote Sensing, GIS and GNSS

- To learn about principles of Remote Sensing (RS): Types of RS satellites and sensors
- Developing concepts about the Sensor resolutions and their applications with reference to IRS and Landsat missions .
- Understanding the Image referencing schemes and acquisition procedure of free geospatial data from NRSC / Bhuvan and USGS .
- Knowledge about preparation of False Colour Composites from IRS LISS-3 and Landsat TM / OLI data.
- Understanding the principles of image interpretation. Preparation of inventories of landuse land cover (LULC) features from satellite images.
- Gain knowledge about the acquisition and utilization of free Digital Elevation Model data: CartoDEM, SRTM and ALOS .
- To learn about the GIS data structures types: Spatial and non-spatial, raster and vector
- Understanding the principles of preparing attribute tables, data manipulation, and overlay analysis.
- Understanding the principles and significance of buffer preparation.
- Understanding the principles and significance of overlay analysis
- Understanding the principles of GNSS positioning and waypoint collection.
- Analysing the principles of transferring of GNSS waypoints to GIS. Area and length calculations from GNSS data.

GEO-A-CC-5-12-P – Remote Sensing, GIS and GNSS

- knowledge about Image georeferencing and enhancement. Preparation of reflectance libraries of LULC features across different image bands of IRS L3 or Landsat OLI data .
- To learn Supervised image classification, class editing, and post-classification analysis .
- To learn digitization of features and administrative boundaries. Data attachment, overlay, and preparation of annotated thematic maps.
- To learn Waypoint collection from GNSS receivers and exporting to GIS database .

GEO-A-DSE-A-5-01-TH – Fluvial Geomorphology

- To learn about the scope and components of Fluvial Geomorphology. Rivers as hydro-systems. Geographers' approach to study of rivers.
- Analysing the processes and significance of sediment entrainment. The Hjulstrom curve
- Understanding the models of channel initiation and network development.
- To learn about the linear, areal and altitudinal properties of drainage basin. Horton's stream laws.
- Understanding the Fundamentals of Rosgen stream classification system.
- knowledge about the fluvial morphodynamics: Adjustment of channel forms to tectonic, climatic, sea level and land use changes.

- To learn about the large rivers of the tropics: Characteristics and significance.
- To learn about the concepts regarding the fluvial landforms: Terraces, alluvial fans, badlands and accretion topography.
- Understanding the riverbank erosion and river degeneration: Processes, management, and impact on land use.
- knowledge about the human intervention on fluvial systems : Types and consequences .
- Understanding the concept and significance of ecological flow.
- Gain knowledge about the integrated watershed management: Principles and significance.

GEO-A-DSE-A-5-01-P – Fluvial Geomorphology

- To learn about the concepts regarding the identification of drainage patterns and construction of channel profiles from Survey of India 1:50k topographical maps. Computation of sinuosity indices from river planforms.
- To learn the explanation of riverbank erosion: Quantification of eroded area and vulnerability zonation using multi- dated maps and images.
- knowledge about the flood frequency analysis from hydrographs.
- Analyses of pebbles: Sphericity and roundness indices.

GEO-A-DSE-B-5-05-TH – Cultural and Settlement Geography

- Understanding the definition, scope and content of cultural geography.
- knowledge about development of cultural geography in relation to allied disciplines.
- Gain knowledge about the cultural hearth and realm, cultural diffusion, diffusion of major world religions and languages.
- Learn about the cultural segregation and cultural diversity, culture, technology and development.
- Knowing the Races and racial groups of the world.
- Understanding the cultural regions of India.
- Learn about the rural settlement: Definition, nature and characteristics.
- Understanding the rural settlement: Site, situation, and morphology
- Gain knowledge about the rural house types with reference to India, social segregation in rural areas. Census of India categories of rural settlements .
- Developing knowledge about urban settlement: Census of India definition and categories.
- Developing concepts regarding urban morphology: Models of Burgess, Hoyt, Harris, and Ullman.
- knowledge about city-region and conurbation. Functional classification of cities: Schemes of Harris, Nelson, and McKenzie.

GEO-A-DSE-B-5-05-P – Cultural and Settlement Geography

- Develop knowledge about mapping language distribution of India.
- Learning about CD block-wise housing distribution in any district of West Bengal using proportional square.
- Identification different rural settlement types from Survey of India 1:50k topographical maps.
- knowledge about social area analysis of a city (After Shevky & Bell) .

GEO-A-CC-6-13-TH – Evolution of Geographical Thought

- To learn about Development of pre-modern Geography: Contributions of Greek, Chinese, and Indian geographers.
- To learn about impact of 'Dark Age' in Geography and Arab contributions.
- Knowledge about geography during the age of 'Discovery' and 'Exploration' (contributions of Portuguese voyages, Columbus, Vasco da Gama, Magellan, Thomas Cook).
- Understanding the transition from cosmography to scientific Geography (contributions of Bernard Varenius and Immanuel Kant). Dualism and Dichotomies (General vs. Particular, Physical vs. Human, Regional vs. Systematic, Determinism vs. Possibilism, Ideographic vs. Nomothetic).
- Gaining knowledge about evolution of Geographical thoughts in Germany, France, Britain, and United States of America
- Knowing the contributions of Humboldt and Ritter.
- Knowing the contributions of Richthofen, Hartshorne–Schaeffer, Ratzel, La Blache.
- Understanding the trends of geography in the post-World War-II period: Quantitative revolution, systems approach .
- Learn about structuralism and historical materialism.
- Developing perception regarding changing concept of space with special reference to Harvey .
- Understanding the evolution of Critical Geography: Behavioural, humanistic, and radical .
- Comprehensive study towards post modernism: Geography in the 21st Century.

GEO-A-CC-6-13-P – Evolution of Geographical Thought

- Learn about the changing perception of maps of the world (Ptolemy, Ibn Batuta, Mercator)comprehensive study.
- Construction of mapping voyages; Columbus, Vasco da Gama, Magellan, Thomas Cook
- Group Presentation of five to ten students on any selected school of geographical thought .

GEO-A-CC-6-14-TH – Hazard Management

- Understanding the classification of hazards and disasters. Hazard continuum.

- Learn about approaches to hazard study: Risk perception and vulnerability assessment. Hazard paradigms.
- Gain knowledge about the responses to hazards: Preparedness, trauma, and aftermath. Resilience, capacity building.
- Knowing about hazards mapping: Data and geospatial techniques .
- Learn about earthquake: Factors, vulnerability, consequences, and management .
- Learn about landslide: Factors, vulnerability, consequences, and management.
- Learn about land subsidence: Factors, vulnerability, consequences, and management.
- Learn about tropical cyclone: Factors, vulnerability, consequences, and management.
- Learn about flood: Factors, vulnerability, consequences, and management.
- Learn about riverbank erosion: Factors, vulnerability, consequences, and management.
- Learn about fire: Factors, vulnerability, consequences, and management.
- Understanding the biohazard: Classification, vulnerability, consequences, and management

GEO-A-CC-6-14-P – Hazard Management

- Perception and comprehension about a selected hazard management through preparation and submission of a project report.

GEO-A-SEC-A-3-02-TH – Tourism Management

- Understanding the scope and Nature of tourism management
- Analysing different types of tourism in national and international level
- Understanding different factors before planning tourist destination , knowledge about tourism product.
- Understanding impact of tourism. Learning the use of IT in tour planning and operation.
- Case study of Important tourist destination in India.

GEO-A-SEC-B-4-03-TH – Rural Development

- Getting the knowledge about the concept of Rural Development and its measure.
- Studying different approaches to rural development particularly of Mahatma Gandhi, Lewis and Myrdal.
- Getting knowledge about important rural development and poverty alleviation project of Central Govt. of India.
- Understanding Panchayeti raj system and it role in rural government.

GEO-A-DSE-A-6-04-TH – Resource Geography

- Learn about natural resources: Concept and classification.
- Gain knowledge towards the approaches to resource utilization: Utilitarian, conservational, community based adaptive.
- Understanding the significance of resources: Backbone of economic growth and development.
- Learn about pressure on resources. Appraisal and conservation of natural resources.
- Knowledge regarding Problems of resource depletion at global scenario.
- Learn about sustainable resource development.

- Learn about distribution, utilisation, problems and management of metallic mineral resources: Iron ore, bauxite, copper .
- Learn about distribution, utilisation, problems and management of non-metallic mineral resources: Limestone, mica, gypsum .
- Learn about distribution, utilisation, problems and management of energy resources: Conventional and non-conventional.
- Understanding the contemporary energy crisis and future scenario.
- Knowledge regarding politics of power resources.
- Learn about limits to growth and sustainable use of resources & concept of resource sharing.

GEO-A-DSE-A-6-04-P – Resource Geography

- Construction of mapping and area estimate of changes in forest or vegetation cover from maps and/or satellite images .
- Construction of mapping and number estimate of changes in water bodies from maps and/or satellite images .
- Understanding the decadal changes in state-wise production of coal and iron ore.
- Learning the computation of Human Development Index & comparative decadal change of top five Indian states.
-

GEO-A-DSE-B-6-08-TH – Geography of India

- Learn about physiographic divisions with reference to tectonic provinces.
- Understanding the climate, soil and vegetation: Classification and interrelation .
- Developing knowledge about population: Distribution, growth, structure, and policy .
- Gain knowledge regarding tribes of India with special reference to Gaddi, Toda, Santal, and Jarwa.
- Developing concept of agricultural regions. Green revolution and its consequences.
- Learn about mineral and power resources: Distribution and utilisation of iron ore, coal, petroleum, and natural gas.
- Understanding the industrial development: Automobile and information technology.
- Learn about regionalisation of India: Physiographic (R.L. Singh) and economic (P. Sengupta).
- Developing concept of physical perspectives: Physiographic divisions, forest and water resources.
- Learn about resources: Agriculture, mining,, and industry.
- Understanding the population: Growth, distribution, and human development .
- Gain knowledge regarding regional issues: Darjeeling Hills and Sundarban.

GEO-A-DSE-B-6-08-P –Geography of India

- Construction of monthly temperature and rainfall graphs of five select stations from different physiographic regions of India.

- Understanding the crop combination & comparison of any two contrasting districts from West Bengal.
- Understanding annual trends of production of mineral resources and manufacturing goods over two decades with the help of statistical techniques.
- Construction of composite Index.

GEOGRAPHY GENERAL

GEO-G-CC-1-TH- PHYSICAL GEOGRAPHY

- Understanding Earth's tectonic and structural evolution with reference to geological time scale
- Knowledge about Earth's interior with special reference to seismology and Isostasy.
- Understanding Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate
- Understanding origin and types Folds and Faults.
- Gain knowledge about degradational processes: Weathering, mass wasting, and resultant landforms
- Understanding processes of entrainment, transportation, and deposition by different geomorphic
- Understanding Development of river network and landforms on granites, basalts and limestones [4]
- Understanding Coastal processes and landforms
- Understanding Glacial and glacio-fluvial processes and landforms
- Understanding Aeolian and fluvio-aeolian processes and landforms
- evolution: Views of Davis, Penck, King. Significance of systems approach.
- Understanding systems approach in hydrology. Global hydrological cycle: Its physical and biological role
- Gain knowledge about run off: controlling factors. Infiltration and evapotranspiration. Run off cycle .
- Learn about drainage basin as a hydrological unit. &principles of water harvesting and watershed management.
- Gain knowledge about major relief features of the ocean floor: Characteristics and origin according to plate tectonics .
- Learn about physical and chemical properties of ocean water .
- To learn Marine resources: Classification and sustainable utilisation .

GEO-A-CC-1-01-P – Geotectonics and Geomorphology practical

- Measurement of dip and strike using clinometer
- Megascopic identification of (a) *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar, galena, tourmaline; and
  (b) *rock samples*: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite.
- Extraction and interpretation of geomorphic information from Survey of India 1:50k
- topographical maps of plateau region: Construction of relief profiles (superimposed,

projected, and composite). Construction of relative relief map, (c. 5' x 5')

- Extraction and interpretation of of drainage characteristics from Survey of India 1:50k topographical maps of plateau region.

GEO-G-CC-2-02-TH – Environmental Geography

- Understanding insolation and Heat Budget and horizontal and vertical distribution of atmospheric temperature and pressure
- Learn about planetary wind systems And Indian Monsoons: Mechanisms and controls
- Developing knowledge about tropical and temperate cyclones and thunderstorms .
- Learn about of global climatic change: Greenhouse effect. Ozone depletion .
- Knowing the scheme of world climatic classification by Köppen.

- Learn about factors of soil formation.
- Knowing about soil profile development under different climatic conditions.
- Learn about physical and chemical properties of soils as example Texture, structure, pH, salinity, and NPK status .
- Developing knowledge about USDA classification of soils.
- Learn about causes of Soil erosion and its management.

- Learn about ecosystem and Biomes. Distribution and characteristics of major biomes of world.
- Developing knowledge about Plant types, ecological adaptations:
- Learn about biodiversity and its types, threats and management with special reference to India.

GEO-G-CC-2-02-P – Environmental Geography

- Learn to Interpret of daily weather map of India from any season: Pre-Monsoon or Monsoon or Post-Monsoon
- Developing knowledge to construction and interpretation of hythergraph, climograph (G. Taylor) and wind rose (seasonal) .
- Developing knowledge to identify soil type by ternary diagram textural plotting.
- Learn to prepare peoples' biodiversity register

GEO-G-CC-3-03-TH – Human Geography

- Learn about sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities .
- Gaining knowledge about Location of economic activities and
- Location of Cotton, Iron and Steel industries with special reference to India.
- Understanding globalisation and integration of world economies .

- Gaining knowledge about human society: Structure, functions, social systems. Population and migration: overview, causes and effects .
- Learn about types and characteristics of social organizations.
- Developing knowledge about Race, Language and Religion
- Knowing about Social Issues: Diversity, conflict and transformation.

- Developing knowledge about cultural landscape and its elements .
- To learn about rural and urban settlements.
- Understanding the differentiation in cultural landscapes.
- To learn about cultural regions and cultural realms .
- Developing knowledge about diffusion of culture and innovations.

GEO-G-CC-3-03-P– Human Geography Lab

- Construction of proportional divided circles by State-wise occupational structure data.
- Developing knowledge about time series analysis of industrial production using any two manufactured goods from India .
- Construction and measuring arithmetic growth rate of population comparing two datasets .
- To learn nearest neighbours analysis: Rural example from Survey of India

GEO-G-CC-4-04-TH – Cartography

- Learning the Classification of Maps and map Scales their significance, and applications.
- Getting knowledge about coordinate systems and Bearing: learning the mathematics behind there conversion.
- Learning about the properties and uses of different map projection.
- Gaining knowledge about topographical map and idea collecting information from those maps
- Representation of data by different trigonometrical shaped.
- Gathering knowledge about Indian mapping agency.
- Learning the basics of Remote Sensing with special reference to ISRO missions .
- Learning the principles of preparing standard FCCs and classified raster images .
- Gaining knowledge about GIS software.
- Learning the theoretical concept of analog surveying with prismatic compass and dumpy level.

GEO-G-CC-4-05-P – Cartography Lab

- Learning Graphical construction of scales:
- Learning construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area,, and Polar Zenithal Stereographic .
- Learning construction of thematic maps: Proportional squares, proportional circles, choropleths, and isopleths .
- Learning preparation of thematic overlays from satellite imagery,

GEO-G-SEC-B-4/6-03-TH – Rural Development.

Getting the knowledge about rural Development: Concept, basic elements, measuring the level of rural development

- Studying different model and approaches to rural development particularly of Mahatma Gandhi,
- Understanding area based approach to rural development: Drought prone area programmes, PMGSY, SJSY, MGNREGA, Jan Dhan Yojana
- Panchayeti raj system and it role in rural government.

GEO-G-DSE-A-5-02-TH – Geography of Tourism

- To learn about scope and Nature: Concepts and issues, tourism, recreation and leisure inter-relations; geographical parameters of tourism by Robinson.
- knowledge about types of Tourism: Ecotourism, cultural tourism, adventure tourism,

medical tourism, pilgrimage, international, national .

- Understanding the factors influencing tourism: Historical, natural, socio-cultural and economic; motivating factors for pilgrimages .
- Developing knowledge about the spatial pattern of tourism: Spatial affinity; areal and locational dimensions comprising physical, cultural, historical and economic; International travel destinations- cultural and historical.
- Learn about the impact of tourism: Physical, economic, social, and perceptive positive and negative impacts.
- Knowledge about environmental laws and tourism – current trends, spatial patterns and recent changes.
- Learn about role of foreign capital and impact of globalisation on tourism.
- Understanding the recent trends of tourism: International and domestic (India) and local, sustainable tourism, Meeting Incentives Conventions and Exhibitions (MICE).
- Developing knowledge about the tourism in India: Tourism infrastructure; regional dimensions of tourist attraction; case studies of Dal lake, Goa, Garhwal Himalaya, desert and coastal areas.
- Knowledge about promotion of tourism: National tourism policy. Role of Internet.
- Gaining knowledge about Infrastructure and support system: Accommodation and supplementary accommodation, other facilities and amenities
- Learn about tourism circuits-short and longer detraction: Agencies and intermediaries, Indian hotel industry.

GEO-G-DSE-A-5-02-P – Geography of Tourism

- Mapping of Tourist flow analysis .
- Construction of tourist flow projection from time-series data.
- Construction of isochronic map showing tourist resource and travel time.
- Bringing out the Environmental Impact Assessment of tourism development: Preparation of questionnaire.

GEO-G-SEC-A-3/5-02-TH – Forest and Wildlife Management

- Understanding the concept of forest and wildlife management: Importance and strategies. Role and significance of stakeholders. Tangible and intangible benefits of forest and wildlife management.

- Learn about the legal framework of forest and wildlife protection in India: The Indian Forest Act 1927, Forest Conservation Act 1980, Wild Life Protection Act 1972, Biodiversity Act 2002.
- Knowledge about forests as common property resources. Forest rights: Tribals and forests. Gender dimension of forest management. Management of poaching and illegal logging.
- To learn about principles of community participation and joint forest management. Causes and management of human–wildlife conflicts with special reference to Jangal Mahal, Sundarban and Duars.

GEO-G-DSE-B-6-04-TH – Population Geography

- Learn about development of Population Geography as a field of specialization. Relation between population geography and demography. Sources of population data, their level of reliability and problems of mapping.
- Understanding the population distribution: Density and growth. Classical and modern theories on population growth, Demographic transition model.
- Gain knowledge of world patterns and determinants of population distribution and growth. Concept of optimum population.
- Understanding the population distribution, density, and growth in India.
- Learn about types of population composition(Age–sex, rural–urban, literacy and education).
- Developing knowledge about the measurements of fertility and mortality & concept of cohort and life table .
- Learn about population composition of India: Urbanisation and occupational structure.
- Learn about migration(Causes and types).
- Gain knowledge national and international patterns of migration with reference to India.
- Understanding the population and development: Population–resource regions (Sekerman). Concept of human Development Index and its components.
- Learn about population policies in developed and less development countries. India's population policies. Population and environment, implication for the future.
- Knowledge about contemporary issues(Ageing of population, declining sex ratio, population and environment dichotomy, impact of HIV/AIDS).

GEO-G-DSE-B-6-04-P – Population Geography

- Construction of population projection by arithmetic method.
- Construction of Population density mapping(State-wise for India).
- Construction of analysis of work participation rate(Total and gender-wise for India).

Construction of analysis occupation structure by dominant and distinctive functions (Districts of West-Bengal).

PROGRAMME OUTCOME:

- **Geography as a discipline of synthesis**: Understanding the nature and causes of aerial differentiation on the global surface has been the primary task since people first noticed differences between places.
- **Understanding differences in patterns of human distribution**: interrelationships between human society and the physical environment, people's use of the Earth in time and space and differences relations between people's cultures and economies are explained through the programme. These, and other related themes, express major concerns of the programme.
- **Identifying a strong influence of the norms of the social behaviour**: The complexity and changing nature of human society and consequent variety of perspectives and methods of study is taught by which students can examine the consequences of human behaviour on the global surface.
- **The idea of place from a spatial perspective**: Geographers consider landscape as a document. Study of physical geography, contribute to an understanding of place; for the concept of site—the physical characteristics of a place—is integral to understanding aerial differentiation on the global surface.
- **Use of technology to increase the capacity to manage the environment**: Technology has greatly aided geographers in their traditional tasks. The course has given them increasingly refined techniques for gathering and interpreting data, whether in the field by means of GPS or by aerial and satellite imagery. Using software to analyse spatial relationships among objects are mapped. Teaching of GIS, in particular, has greatly assisted geographers in depicting the character of place. Not only can they now process larger quantities of data more quickly and with greater refinement, but also they can manipulate variables and thus project alternatives that give geography an applied dimension.
- **Display of project work using advanced techniques of computer-generated mapping**: The view of geography presented in the programme is that of a core sharply focussed on the concept of place one in which both physical and human elements play an important part. The subject has grown an applied dimension that can affect our daily lives. It can, therefore, be a powerful medium for the development of skills contributing to citizenship and cultural awareness.

PROGRAMME SPECIFIC OUTCOME

- **Physical geography**: It deals with the physical features of the earth. Studies in physical geography provides a stage for human activities where these together constitute the whole gamut of geographical studies. Some branches of physical geography are as follows:

1. *Geo-tectonics*: It explains the origin of major physical features on the earth.
2. *Geomorphology*: It helps to understand and interpret the changes of topography and explains the role of denudation agents over earth's surface.
3. *Climatology*: It gives knowledge about the atmosphere, weather and climate.
4. *Pedology*: it provides knowledge of soils, their properties, uses and management.
5. *Bio-geography*: It helps to explain global ecosystem, their changes, consequences and management.

- **Human Geography**: The human imprint, the features of material culture associated with agriculture, manufacturing, trade, mining and the other economies, houses, fields, roads, factories domesticated animals etc. become the immediate interest and object of study of human geography. The branches are as follows:

1. *Social Geography*: It interprets the impact of social behaviour on spatial patterns of human life.
2. *Cultural Geography*: It explains spatiotemporal changes of human culture and its impact on physiography as well as livelihood.
3. *Settlement Geography*: It studies the spatial extent of human settlement their origin and evolution.
4. *Population Geography*: It is the study population dynamics like mortality rates, fertility rates, migration etc.
5. *Urban Geography*: It studies the spatial extent of urban areas their distribution evolution growth and development etc.
6. *Anthropogeography:* It studies the origin and evolution of human species.

- **Economic Geography**: This branch of geography deals with the economic aspect of human societies under;

1. *Resource Geography*: That branch of economic geography that focuses the study of resources their distribution, production, utilisation and conservation.
2. *Agricultural Geography*: It studies spatial variations in agricultural activity-the cultivation of soil in order to grow crops and rear livestock.
3. *Industrial Geography*: It is the study of spatial variations in industrial activity on the earth's surface.
4. *Transport Geography*: It studies the mobility of goods and transport. 2. Social and cultural Geography: It studies the social phenomena and occupation of social space, the development of human cultures etc.