

Syllabus Distribution / Unitization of Syllabus

Department of Geography

| Semester | Paper/ Course Code/ Course Title | Assignments |
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| UG 1 st Sem | Major Course S/GEO /101/MJC-1T | <p>Fundamentals of Physical Geography</p> <p>Unit 1: Earth: Origin and Tectonic Processes 1.1 Origin of Universe (Big Bang Model), Origin of Earth (Nebular Hypothesis of Laplace and Interstellar Dust Cloud Hypothesis of Schimdt) (Abira Dutta Roy) 1.2 Internal Structure of the Earth: Seismological Evidences, physical, chemical and seismic properties of Earth layers (Abira Dutta Roy) 1.3 Isostasy: Models of Airy and Pratt; Continental Drift Theory of Alfred Wegener (Abira Dutta Roy) 1.4 Sea Floor Spreading; Plate Tectonic Theory- Processes at plate margins and Triple Junctions (Abira Dutta Roy)</p> <p>Unit 2: Landform Development (20 Hours) 2.1 Degradational Processes: Weathering, Mass Wasting and resultant landforms (Nabanita Mukhopadhyay) 2.2 Evolution of landforms on Uniclinal, Folded and Faulted Strata (Nabanita Mukhopadhyay) 2.3 Landscape Evolution Models: Davis, Penck and Hack (Mousumi Karmakar) 2.4 Processes of landform development in Karst, Fluvial, Glacial and Aeolian environment (Mousumi Karmakar)</p> <p>Unit 3: Biosphere (20 Hours) 3.1 Factors of Soil formation (Amrita Dey) 3.2 Soil profile: origin and profile characteristics of Laterite, Podzol and Chernozem soils (Amrita Dey) 3.3 Concepts of Biosphere, Ecosystem, Biome and Ecotone (Shyamal Santra) 3.4 Concepts of Trophic structure, Food Chain and Food Web. Energy Flow in ecosystem (Shyamal Santra)</p> <p>Elementary Practicals in Geography:</p> <p>Unit-1: Map Scale (15 Hours) (Jahangir Hossain) 1.1 Definition and Types of Map Scale 1.2 Construction of Linear, Comparative (Unit), Diagonal and Vernier scales. 1.3 Scale Enlargement and Reduction (Computations) 1.4 Calculation of area from maps (Graphical Methods)</p> <p>Unit-2: Map Projections (15 Hours) (Abira Dutta Roy) 2.1 Map Projections: Nature, Classification and Uses 2.2 Basic Concepts: Parallels and Meridians, Datum, Geoid, Scale Factor, Deformation, Orthodrome and Loxodrome. 2.3 Principles, Theories, Construction and Properties of select Map</p> |

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| | | <p>Projections: Conical Case Simple Conical with one Standard Parallel and Polyconic; Cylindrical Case- Equal Area, Mercator; Zenithal Case- Gnomonic, Stereographic</p> <p>2.4 UTM Grid System.</p> <p>Unit-3: Rocks-Minerals and Instruments (15 Hours) (Shyamal Santra)</p> <p>3.1 Megascopic Identification of Rocks: Granite, Basalt, Limestone, Shale, Sandstone, Slate, Marble and Schist</p> <p>3.2 Megascopic Identification of Minerals: Bauxite, Calcite, Chalcopryrite, Feldspar, Galena, Haematite, Magnetite and Quartz</p> <p>3.3 Recording of Maximum-Minimum Thermometer (Six's)</p> <p>3.4 Recording of Fortin's Barometer, Hygrometer.</p> |
| | <p>Minor Course S/GEO /102/MN-1T:</p> | <p>Fundamentals of Physical Geography</p> <p>Unit 1: Earth: Origin and Tectonic Processes (20 Hours)</p> <p>1.5 Origin of Universe (Big Bang Model), Origin of Earth (Nebular Hypothesis of Laplace and Interstellar Dust Cloud Hypothesis of Schimdt) Mousumi Karmakar)</p> <p>1.6 Internal Structure of the Earth: Seismological Evidences, physical, chemical and seismic properties of Earth layers Mousumi Karmakar)</p> <p>1.7 Isostasy: Models of Airy and Pratt; Continental Drift Theory of Alfred Wegener (Nabanita Mukhopadhyay)</p> <p>1.8 Sea Floor Spreading; Plate Tectonic Theory- Processes at plate margins and Triple Junctions. (Nabanita Mukhopadhyay)</p> <p>Unit 2: Landform Development (20 Hours)</p> <p>2.5 Degradational Processes: Weathering, Mass Wasting and resultant landforms (Nabanita Mukhopadhyay)</p> <p>2.6 Evolution of landforms on Uniclinal, Folded and Faulted Strata (Nabanita Mukhopadhyay)</p> <p>2.7 Landscape Evolution Models: Davis, Penck and Hack (Mousumi Karmakar)</p> <p>2.8 Processes of landform development in Karst, Fluvial, Glacial and Aeolian environment. (Mousumi Karmakar)</p> <p>Unit 3: Biosphere (20 Hours) (Amrita Dey)</p> <p>3.5 Factors of Soil formation</p> <p>3.6 Soil profile: origin and profile characteristics of Laterite, Podzol and Chernozem soils</p> <p>3.7 Concepts of Biosphere, Ecosystem, Biome and Ecotone 3.8 Concepts of Trophic structure, Food Chain and Food Web. Energy Flow in ecosystem.</p> <p>.</p> |

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| | Multi Course S/GEO/103/MD-1P: | <p>Surveying and Mapping Techniques</p> <p>Unit-1: Scale and Cartograms (15 Hours) (Jahangir Hossain) [1.1 Construction of Linear and Comparative (Unit) 1.2 Cartograms: Proportional Circle and Pie graph 1.3 Age-Sex Pyramid 1.4 Dependency Ratio.</p> <p>Unit-2: Surveying (15 Hours) (Jahangir Hossain) 1.1 Concepts and Principles: Angle and Bearing, Traversing, Radiation, Intersection 1.2 Prismatic Compass: Preparation of land use maps by open and closed traverse 1.3 Computations of compass traverse- Included Angle, Area of traverse 1.4 Levelling by Dumpy Level: Profile and Contouring.</p> <p>Unit 3: Mapping Techniques (15 Hours) (Nabanita Mukhopadhyay) 3.1 Population Maps and Diagrams: Choropleth method 3.2 Measures of Inequality: Location Quotient 3.3 Measures of Interaction: Nearest Neighbour Analysis 3.4 Combinational Analysis: Weaver's Crop Combination.</p> |
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| UG 3 rd Sem | SHGEO /301/C-5T: | <p>Climatology</p> <p>Unit-1: Structure and Composition of Atmosphere(Shyamal Santra) 1.1 Insolation: Factors and Distribution, Global Heat Budget 1.2 Inversion of Temperature: Processes and Impact on Surface Weather 1.3 Atmospheric Stability and Instability 1.4 Forms and processes of Condensation; Mechanism of Precipitation: Ice Crystal and Collision-Coalescence Theory</p> <p>Unit-2: Atmospheric Circulation (Abira Dutta Roy) 2.1 Factors controlling Air Motion and resulting Flow Patterns 2.2 Planetary Wind system with special reference to Tricellular Model; Walker Circulation and ENSO 2.3 Jet Stream and Rossby Waves: Origin, Characteristics and Impact on Surface Weather 2.4 Genesis of Monsoon with particular reference to South Asia</p> <p>Unit-3: Extreme Events and Climatic Classification (Amrita Dey) 3.1 Origin and Classification Airmass; Frontogenesis and Frontolysis 3.2 Origin and Characteristics of Tropical and Temperate Cyclones 3.3 Classification of World Climates: Schemes of Koppen and Thornthwaite 3.4 Climate Change: Causes and Evidences</p> <p>Geography of India</p> <p>Unit 1: Physical Setting 1.1 Tectonic and stratigraphic provinces, physiographic divisions (Mousumi Karmakar) 1.2 Drainage Characteristics: Peninsular and Extra-peninsular Drainage- origin and regime (Nabanita Mukhopadhyay)</p> |

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| | <p>SHGEO /302/C-6T:</p> <p>1.3 Climate, soil and vegetation: Characteristics and classification (Amrita Dey)</p> <p>1.4 Mineral and power resources distribution and utilisation: Iron ore, Coal, Petroleum, Natural Gas. (Amrita Dey)</p> <p>Unit 2: Cultural and Economic setting</p> <p>2.1 Population: Distribution, growth, structure and policy (Nabanita Mukhopadhyay)</p> <p>2.2 Distribution of population by race, caste, religion and language (Nabanita Mukhopadhyay)</p> <p>2.3 Agricultural regions; Green Revolution and its consequences (Mousumi Karmakar)</p> <p>2.4 Industrial development: Automobile and Information Technology. (Mousumi Karmakar)</p> <p>Unit 3: Geography of West Bengal (Shyamal Santra)</p> <p>3.1 Physical perspectives: Physiographic divisions, forest and water resources</p> <p>3.2 Population: Growth, distribution and human development</p> <p>3.3 Resources: agriculture, mining and industries</p> <p>3.4 Regional Problem: Water Scarcity and Irrigation Problem of Bankura Jangalmahal Area</p> |
| | <p>SHGEO /303/C-7P:</p> <p>Statistical Methods in Geography</p> <p>Unit-1: Data Collection and Representation (Jahangir Hossain)</p> <p>1.1 Geographical Data Management: Collection (Sampling Techniques- Significance and Types), Classification, Tabulation, Interpretation and Analysis of Geographical Data</p> <p>1.2 Frequency Distribution: Attribute and Variable, Discrete and Continuous, Graphical Representation of Frequency Distribution (Histogram, Polygon, Curve and Ogives)</p> <p>1.3 Measures of Central Tendency: Mean, Median and Mode; Skewness</p> <p>1.4 Measures of Dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation, Coefficient of Variation</p> <p>Unit-2: Data Analysis and Interpretation (Jahangir Hossain)</p> <p>2.1 Simple Correlation and Linear Regression 2.2 Time Series Analysis: Actual Trend, Semi Average, Moving Average,</p> <p>2.3 Standard Error of Estimate and Standard Scores (Computations and Graphical Representation)</p> <p>2.4 Absolute Residual Mapping</p> <p>Unit-3: Analysis of Hypothesis (Abira Dutta Roy)</p> <p>3.1 Hypothesis: Concept and Types; Types of Error 3.2 Estimating Confidence Interval and Statistical Significance 3.3 Tests of Hypothesis: Chi Square Test; Student 't' Test 3.4 Degrees of Freedom; Rejection and Acceptance of Hypothesis</p> <p>Computer Basics and Applications</p> <p>Unit-1: Computer Basics (Mousumi Karmakar)</p> <p>1.1 Components of Computer System: Hardware, Software</p> <p>1.2 Concept of computing, Data and Information</p> |

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| | SHGEO/305/SEC-1P: | <p>1.3 Operating Systems, User Interface 1.4 File and Directory Management, Common utilities of computer in geography.</p> <p>Unit-2: Understanding Spreadsheets (Abira Dutta Roy) 2.1 Data Entry: Arrangement into ascending and descending order 2.2 Manipulation of cells, formulas and functions 2.3 Computation of Mean, Median, Mode, Standard Deviation using formula for ungrouped and grouped data 2.4 Graphical Representation: Line, Bar, Pie/Doughnut, Scatter Diagram, Fitting of Trend Lines.</p> <p>Unit-3: Internet Basics (Nabanita Mukhopadhyay) 3.1 Concept of Internet, World Wide Web, Search Engine, URLs 3.2 Internet Surfing: generation and extraction of information 3.3 Basics of Electronic Mails, Emails 3.4 Cloud Computing and Drive Sharing.</p> <p>Cartographic Techniques/ Maps and Diagrams Unit-1: Scale and Cartograms 1.1 Construction of Linear and Comparative (Unit) (Amrita Dey) 1.2 Cartograms: Circle, Square and Pie graph (Amrita Dey) 1.3 Age-Sex Pyramid, Dependency Ratio 1.4 Population Maps and Diagrams: Choropleth, and Dot method.</p> <p>Unit-2: Map Projections and Surveying 2.1 Map Projections: Nature and Classification (Mousumi Karmakar) 2.2 Principles, Theories, Construction and Properties of select Map Projections: Simple Conical with one standard parallel, Cylindrical Equal Area, Polar Zenithal Stereographic (Mousumi Karmakar) 2.3 Surveying: Concepts and Principles- Angles, Bearing and Azimuths, Traversing, Radiation, Intersection by Prismatic Compass: Preparation of Land Use maps by open and closed traverse; computations of compass traverse- Included Angle, Area of traverse.</p> <p>Unit-3: Field Report (Jahangir Hossain) Each student will prepare an individual report based on primary data collected from field survey and secondary data collected from different sources for either a rural area (mouza) or an urban area (municipal ward) or watershed based on cadastral, municipal or any base maps to study related specific problems.</p> <p>Statistical Methods in Geography 1. Geographical Data Collection and Management: Primary and Secondary data, Population and Sample, Classification and Tabulation (Mousumi Karmakar) 2. Frequency Distribution: Ungrouped and Grouped data (Mousumi Karmakar) 3. Diagrammatic Representation of Frequency Distribution (Histogram, Polygon, Curve and Ogive) (Jahangir Hossain) 4. Measures of Central Tendency: Mean, Median, Mode (Jahangir Hossain)</p> |
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| UG 5 th Sem | SHGEO/501/C-11T: | <p>Evolution of Geographical Thought</p> <p>Unit-1: Development of Geography 1 Definition, Scope and Content of Geography (Nabanita Mukhopadhyay) 2 Development of Geography in the Ancient and Mediaeval Periods (Mousumi Karmakar) 3 Development of Modern Scientific Geography in the 19th Century with particular reference to the Contributions of Humboldt and Ritter (Mousumi Karmakar) 4 Development of Geography in the 20th Century: Quantitative Revolution and its impact (Nabanita Mukhopadhyay)</p> <p>Unit-2: Development of Schools of Thought in Modern Geography (Shyamal Santra) 1 German School 2 British School 3 American School 4 Indian School</p> <p>Unit-3: Concepts and Trends in Geography (Jahangir Hossain) 1 Concepts of Determinism, Possibilism and Neo-Determinism 2 Concepts of Empiricism and Positivism 3 Approaches to Geographic Studies: Systematic vs. Regional approach 4 Recent trend in Geography: Feminism, Post Modernism</p> |
| | SHGEO/502/C-12P: | <p>Remote Sensing Techniques (Abira Dutta Roy)</p> <p>Unit-1: Basic Concepts 1 Basic Concepts: Energy Sources, Interactions with Atmosphere, Sensing Systems, Resolutions: Spatial, Spectral, Radiometric and Temporal 2 Principles of preparing Standard False Colour Composites 3. Principles of image interpretation and feature extraction. Preparation of inventories of land use land cover (LULC) features from satellite images. 4. Digital Image Processing: Subset Image, Spectral Signature, 5 Image Classification: Supervised and Unsupervised</p> |
| | SHGEO/503/DSE-1T: | <p>Hydrology and Oceanography</p> <p>Unit 1: Hydrology (Abira Dutta Roy) 1.1 Systems Approach in hydrology. Global hydrological cycle: Its physical and biological role 1.2 Run off: controlling factors. Infiltration and evapotranspiration. Run off cycle 1.3 Drainage basin as a hydrological unit. Principles of water harvesting and watershed management 1.4 Groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement.</p> <p>Unit 2: Oceanography 2.1 Major relief features of the ocean floor: characteristics and origin according to plate tectonics. (Jahangir Hossain) 2.2 Physical and chemical properties of ocean water (Jahangir Hossain) 2.3 Water mass, T–S diagram (Mousumi Karmakar) 2.4 Ocean temperature and salinity: Distribution and determinants. (Nabanita Mukhopadhyay)</p> <p>Unit 3: Ocean Resources and Sea Level Change (Jahangir Hossain) 3.1 Coral reefs: Formation, classification and threats 3.2 Marine resources: Classification and sustainable utilization</p> |

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| | | <p>3.3 Concept of wave and tide 3.4 Sea level change: Types and causes.</p> <p>Cultural and Settlement Geography</p> <p>Unit 1: Cultural Geography (Amrita Dey) 1.1 Definition, scope and content of Cultural Geography, development of cultural geography in relation to allied disciplines 1.2 Cultural Hearth and Realm; Cultural Diffusion, Cultural Segregation and Cultural diversity Diffusion of major world religions and languages 1.3 Culture, Technology and Development. 1.4 Races and racial groups of the world</p> <p>Unit 2: Rural Settlement 1. Rural Settlement: Definition, nature and characteristics of rural settlements (Mousumi Karmakar) 2. Morphology of rural settlements: site and situation, layout-internal and external (Nabanita Mukhopadhyay) 3. Rural house types with reference to India, Social segregation in rural areas (Nabanita Mukhopadhyay) 4. Census categories of rural settlements. (Mousumi Karmakar)</p> <p>Unit-3: Urban Settlement 3.1 Urban Settlements: Census definition (Temporal) and categories in India (Mousumi Karmakar) 3.2 Urban morphology: Classical models-Burgess, Homer Hoyt, Harris and Ullman. (Nabanita Mukhopadhyay) 3.3 City-region and Conurbation (Amrita Dey) 3.4 Functional classification of cities: Harris, Nelson and Mackenzie. (Amrita Dey)</p> <p>Urban Geography (OPTIONAL)</p> <p>Unit 1: Basic Concepts 1.1 Urban Geography: nature and scope, different approaches and recent trends in urban geography 1.2 Origin of urban places in Ancient, Medieval, Modern and Post-Modern periods factors, stages, and characteristics. 1.3 Theories of Urban Evolution and Growth: Hydraulic Theory, Economic Theory 1.4 Urban Hierarchies : Central Place Theory;</p> <p>Unit 2: Urban Processes 2.1 Ecological processes of urban growth; Urban fringe; City-Region 2.2 Theories of city structure- concentric zone theory, sector theory, multiple nucleith theory 2.3 Aspects of urban places: Location, site and situation, Size and Spacing of Cities: The Rank Size Rule, The Law of the Primate City 2.4 Patterns of urbanization in developed and developing countries.</p> <p>Unit 3: Urbanization in India 3.1 Urban Issues: problems of housing, slums, civic amenities (water and transport) 3.2 Patterns and trends of urbanization in India 3.3 Policies on urbanization. Urban change/landscape in post-liberalized period in India 3.4 Case studies of Delhi, Kolkata, and Chandigarh with reference to land</p> |
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