UNIVERSITY OF KALYANI

Syllabus for B.A./B.Sc. (Honours) Course in Geography
According to the Choice Based Credit System (CBCS)

SEMESTER-I

CORE COURSE (CC):

GEO/H/CC/T/01: (Theory): GEOTECTONICS AND GEOMORPHOLOGY 6 Credits

Unit-1: Geotectonics 2 Credits

1. Earth's tectonic and structural evolution with reference to geological time scale
2. Earth's interior with special reference to seismology
3. Concept of Isostasy: Theories of Airy and Pratt
4. Earth movements: Plate tectonics; Types of folds and faults; Earthquakes and Volcanoes

Unit-2: Geomorphology 4 Credits

1. Geomorphology: Nature and Scope
2. Degradation processes: Weathering; Mass wasting and resultant landforms
3. Models of landscape evolution: Views of Davis, Penck, King and Hack
4. Development of river network and landforms on uniclinal and folded structures
5. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial and Coastal

CC/02: CARTOGRAPHIC TECHNIQUES AND GEOLOGICAL MAP STUDY 6 Credits

GEO/H/CC/T/02: (Theory): Cartographic Techniques and Geological Map Study 4 Credits

1. Cartography: Nature and Scope
2. Maps: Classification and Types; Components of a Map
3. Concept of Scales: Linear, Comparative, Diagonal and Vernier
4. Coordinate Systems: Polar and Rectangular; Concept of Geoid and Spheroid; Map Projections: Classification, Properties and Uses; Concept and Significance of UTM Projection
5. Survey of India Topographical Maps: Reference Scheme of Old and Open series
6. Types of Rocks and Minerals; Characteristics of Granite, Basalt, Dolerite, Pegmatite, Gneiss, Shale, Sandstone, Slate, Marble, Quartzite, Quartz, Feldspar, Mica, Limestone, Calcite, Bauxite, Magnetite, Hematite, Galena (using samples of rocks and minerals)
7. Concept of Bedding Plane, Unconformity and Non-conformity, Thickness of Bed, Dip, Throw, Hade, Heave

GEO/H/CC/P/02: (Practical): Cartographic Techniques and Geological Map Study 2 Credits

1. Construction of Scales: Linear, Comparative, Diagonal and Vernier
2. Construction of Projections: Polar Zenithal Stereographic Projection, Simple Conical with One Standard Parallel Projection, Bonne's Projection and Mercator's Projection
3. Construction and Interpretation of Relief Profiles (Superimposed, Projected and Composite), Preparation of Relative Relief Map, Average Slope Map (Wentworth Method), and Stream Ordering (After Strahler) on a Drainage Basin
4. Transect chart: Relation between physical and cultural features from topographical maps (Survey of India)
5. Geological Map (Problems related to Horizontal, Uniclinal, Folded and Faulted Structure); Drawing of Geological Section and Interpretation of the Map

***A Project File of exercises consisting of each theme is to be submitted**

GENERIC ELECTIVE (GE):

[For Students other than Geography Honours]

GE/01: DISASTER MANAGEMENT OR GEOGRAPHY OF TOURISM 6 Credits

GEO/H/GE/T/01/A: (Theory): Disaster Management 6Credits

1. Definition and Concepts: Hazards, Disasters; Risk and Vulnerability; Classification of hazards
2. Disasters in India: (a) Flood: Causes, Impact, Distribution and Mapping; Landslide: Causes, Impact, Distribution and Mapping; Drought: Causes, Impact, Distribution and Mapping
3. Disasters in India: (b) Earthquake and Tsunami: Causes, Impact, Distribution and Mapping; Cyclone: Causes, Impact, Distribution and Mapping.
4. Manmade disasters: Causes, Impact, Distribution and Mapping of Soil erosion and Accidental release of toxic chemicals
5. Response and Mitigation to Disasters: Institutional set up, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post Disasters

OR

GEO/H/GE/T/01/B: (Theory): Geography of Tourism 6 Credits

1. Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations; Geographical Parameters of Tourism by Robinson
2. Types of Tourism: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage
3. Recent Trends of Tourism: International and Regional; Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings, Incentives, Conventions and Exhibitions (MICE)
4. Impact of Tourism: Economy; Environment; Society
5. Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert and Coastal Areas; National Tourism Policy

SEMESTER-II

CORE COURSE (CC):

GEO/H/CC/T/03 : (Theory): HUMAN GEOGRAPHY **6 Credits**

Unit-1: Nature and Principles **2 Credits**

1. Introduction: Defining Human Geography; Major Themes; Contemporary Relevance
2. Evolution of Humans; Concept of Race and Ethnicity; Major Racial Groups of the World
3. Space, Society and Cultural Regions (Language and Religion)
4. Concept: Culture, Cultural Diffusion, Community, Society, Cultural Realms

Unit-2: Society, Demography and Ekistics **4 Credits**

1. Evolution of Human Society: Hunting and Gathering, Pastoral Nomadism, Subsistence Farming, Industrial and Urban Society
2. Population Growth and Distribution, Population Composition; Demographic Transition Model
3. Population–Resource Regions (Ackerman)
4. Population and Environment Relations with special reference to Development–Environment Conflict
5. Social Morphology and Rural House Types in India
6. Types and Patterns of Rural Settlements
7. Functional Classification of Urban Settlements
8. Trends and Pattern of World Urbanization

CC/04: CARTOGRAMS, SURVEY AND THEMATIC MAPPING **6 Credits**

GEO/H/CC/T/04: (Theory): Cartograms, Survey and Thematic Mapping **4 Credits**

1. Concepts of Cartograms and Thematic Maps
2. Concept and Utility of Isopleth and Choropleth
3. Concept, utility and Interpretation of: Climograph, Hythergraph and Ergograph
4. Preparation and Interpretation of Demographic Charts and Diagrams (Age-Sex Pyramid)
5. Concepts of Bearing: Magnetic and True, Whole-circle and Reduced
6. Basic Concepts of Surveying and Survey Equipments: Abneys Level, Clinometer
7. Basic Concepts of Surveying and Survey Equipments: Prismatic Compass, Dumpy Level, Transit Theodolite
8. Interpretation of Landuse and landcover maps

GEO/H/CC/P/04: (Practical): Cartograms, Survey and Thematic Mapping **2 Credits**

1. Diagrammatic Representation of Data: Star and Age-sex Pyramid Diagram, Pie Diagram
2. Representation of Data on Map by Proportional Circles, Dots and Spheres, Isolines and Choropleth method
3. Survey: Traversing by Prismatic Compass and Dumpy Level with One Change Point (Profile Drawing)
4. Determination of Height of Objects using Transit Theodolite (Accessible bases)

***A Project File of exercises consisting of each theme is to be submitted**

GENERIC ELECTIVE (GE):

[For Students other than Geography Honours]

GE/02: GEOSPATIAL TECHNOLOGY OR REGIONAL DEVELOPMENT 6 Credits

GEO/H/GE/T/02/A: (Theory): Geospatial Technology 6 Credits

1. Definition, scope and historical development of geospatial technology
2. Concepts of spheroid, ellipsoid and projection systems. Significance of WGS 84 and UTM
3. Data types and structures in spatial technology
4. Classification of Remote Sensing platforms, sensors and resolution. IRS (Resourcesat and Cartosat) and Landsat systems
5. Concept and function of GPS, DGPS and Total Station
6. Functions of Spatial information system: Information retrieval; Topological modeling; Networks; Overlay; Data output
7. Visual and Digital techniques of image interpretation
8. Development of web-based spatial platforms with reference to Bhuvan and Google Earth
9. Application of Geospatial Technology

OR

GEO/H/GE/T/02/B: (Theory): Regional Development 6 Credits

1. Definition of Region, Evolution, Types and Need of Regional planning: Formal, Functional and Planning Regions and Regional Development
2. Regional Imbalances and Problems of Functional Regions
3. Choice of a Region for Planning: Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning (Agro Ecological Zones)
4. Strategies/Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Village Cluster
5. Problem Regions and Regional Planning: Backward Regions and Regional Plans- Special Area Development Plans in India; DVC-The Success Story and the Failures
6. Concept of Human Development and HDI (Human Development Index)

SEMESTER-III

CORE COURSE (CC):

GEO/H/CC/T/05: (Theory): CLIMATOLOGY **6 Credits**

Unit-1: Elements of the Atmosphere **2 Credits**

1. Nature, Composition and Layering of the Atmosphere
2. Insolation: Controlling Factors. Heat Budget of the Atmosphere
3. Temperature: Horizontal and Vertical Distribution; Inversion of Temperature: Types, Causes and Consequences
4. Greenhouse Effect and Importance of Ozone Layer

Unit-2: Atmospheric Phenomena, Climate Change and Climatic Classification **4 Credits**

1. Condensation: Processes and Forms; Mechanism of Precipitation: Bergeron-Findeisen Theory, Collision and Coalescence; Forms of Precipitation
2. Air mass: Typology, Origin, Characteristics and Modification
3. Fronts: Warm and Cold; Frontogenesis and Frontolysis
4. Weather: Stability and Instability; Barotropic and Baroclinic Conditions
5. Circulation in the Atmosphere: Planetary Winds; Jet Stream
6. Monsoon Circulation and Mechanism with reference to India
7. Tropical and Mid-latitude Cyclones
8. Climatic Classification after Köppen, Thornthwaite (1931 and 1948)

CC/06: STATISTICAL METHODS IN GEOGRAPHY **6 Credits**

GEO/H/CC/T/06: (Theory): Statistical Methods in Geography **4 Credits**

UNIT-1:

1. Importance and Significance of Statistics in Geography; Discrete and Continuous Data; Population and Samples; Scales of Measurement (Nominal, Ordinal, Interval and Ratio); Sources of Data
2. Collection of Data and Formation of Statistical Tables
3. Sampling: Need, Types, and Significance and Methods of Purposive, Random, Systematic and Stratified
4. Distribution: Frequency, Cumulative Frequency; Probability: Normal Distribution

UNIT-2:

1. Central Tendency: Mean, Median, Mode, Partition Values
2. Measures of Dispersion: Range, Mean Deviation, Standard Deviation, Coefficient of Variation
3. Association and Correlation: Rank Correlation, Product Moment Correlation
4. Linear Regression and Time Series Analysis

GEO/H/CC/P/06: (Practical): Statistical Methods in Geography **2 Credits**

1. Construction of Data Matrix with each Row representing an Aerial Unit (Districts / Blocks / Mouzas / Towns) and Corresponding Columns of Relevant Attributes
2. Based on the above, a Frequency Table, Measures of Central Tendency and Dispersion would be Computed and Interpreted
3. Histograms and Frequency Curve would be Prepared on the Dataset
4. Based on the Sample Set and using Two Relevant Attributes, a Scatter Diagram and Regression Line would be Plotted and Residual from Regression would be Mapped with a short Interpretation

***A Project File of exercises consisting of each theme is to be submitted**

GEO/H/CC/T/07: (Theory): GEOGRAPHY OF INDIA **6 Credits**

Unit-1: Geography of India **4 Credits**

1. Physical: Geology and Physiographic Divisions
2. Regionalisation of India: Physiographic (R.L. Sing); Socio-Cultural (Sopher) and Economic (Sengupta)
3. Climate, Soil and Vegetation: Characteristics and Classification
4. Population: Distribution, Growth, Structure and Policy
5. Distribution of Population by Race, Caste, Religion, Language, Tribes
6. Agricultural Regions; Green Revolution and its Consequences
7. Mineral and Power Resources: Distribution and Utilisation of Iron Ore, Coal, Petroleum, Natural Gas
8. Industrial Development: Automobile and Information Technology

Unit 2: Geography of West Bengal **2 Credits**

1. Physical Perspectives: Physiographic Divisions, Forest and Water Resources
2. Population: Growth, Distribution and Human Development
3. Resources: Mining, Agriculture and Industries
4. Regional Development: Darjeeling Hills, Sundarban Delta, Nadia and Murshidabad District

GENERIC ELECTIVE (GE):

[For Students other than Geography Honours]

GE/03: CLIMATE CHANGE: VULNERABILITY AND ADAPTATION OR RURAL DEVELOPMENT **6 Credits**

GEO/H/GE/T/03/A: (Theory): Climate Change: Vulnerability and Adaptation **6 Credits**

1. Science of Climate Change: Understanding Climate Change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC Reports
2. Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability
3. Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health
4. Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia
5. Key Concepts of National Action Plan of India on Climate Change; Role of Local Institutions (Urban Local Bodies, Panchayats) on Climatic Change Mitigation: Awareness and Action Programmes

OR

GEO/H/GE/T/03/B: (Theory): Rural Development **6 Credits**

1. Defining Development: Inter-Dependence of Urban and Rural Sectors of the Economy; Need for Rural Development, Gandhian Approach of Rural Development
2. Rural Economic Base: Panchayatiraj System, Agriculture and Allied Sectors, Seasonality and Need for Expanding Non-Farm Activities, Co-operatives, PURA
3. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY
4. Target Group Approach to Rural Development: SJSY, MNREGA, Jan Dhan Yojana and Rural Connectivity
5. Provision of Services – Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro credit

SKILL ENHANCEMENT COURSE (SEC):

GEO/H/SEC/P/01/A: (Practical): Computer Basics and Computer Applications **2 Credits**

1. Numbering Systems; Binary Arithmetic
2. Data Computation, Storing and Formatting in Spreadsheets: Computation of Rank, Mean, Median, Mode, Standard Deviation, Moving Averages, Derivation of Correlation, Coefficient of Variation , Regression
3. Preparation of Annoted Diagrams and its Interpretation: Scatter Diagram and Histogram
4. Internet Surfing: Generation and Extraction of Information

***A Project File of exercises consisting of each theme is to be submitted**

OR

GEO/H/SEC/P/01/B: (Practical): Remote Sensing **2 Credits**

1. Concepts and Principles of Remote Sensing (RS): Classification of RS Satellites and Sensors
2. Sensor Resolutions and Their Application with reference to IRS and Landsat Missions, Image Referencing Schemes and Data Acquisition
3. Preparation of False Colour Composites (FCC) from IRS LISS-III and Landsat TM, Landsat ETM; Principles of Image Rectification and Enhancement
4. Principles of Image Interpretation and Feature Extraction, Preparation of Inventories of Landuse/ landcover Features from Satellite Images

***A Project File of exercises consisting of each theme is to be submitted**

SEMESTER-IV

CORE COURSE (CC):

GEO/H/CC/T/08: (Theory): Regional Planning and Development **6 Credits**

Unit-I: Regional Planning **2 Credits**

1. Concept of region, Types and delineation: Formal, functional and planning regions
2. Types of planning, principles and techniques of regional planning
3. Needs of regional planning, multi level planning in India
4. Concept of metropolitan and urban agglomerations; Regionalisation of India for planning (Agro-Ecological Zones)

Unit-II: Regional Development **4 Credits**

1. Development: Meaning, growth versus development
2. Theories and models for regional development: Growth pole model of Perroux; growth foci model in Indian context (R.P. Misra)
3. Theories and models for regional development: Cumulative causation (Myrdal), Core periphery (Hirschman, Rostow and Friedman)
4. Changing concept of development; concept of underdevelopment
5. Concept and indicators of regional imbalances in India
6. Significance of balanced development in India
7. Human development: Significance, Indicators and Measurement

GEO/H/CC/T/09: (Theory): Economic Geography **6 Credits**

Unit-I: Concept **2 Credits**

1. Meaning and approaches to Economic Geography
2. Concept in Economic geography: goods and services production, exchange and consumption
3. Factors influencing location of economic activity and forces of agglomeration
4. Determining factors of transport costs

Unit-II: Economic Activities **4 Credits**

1. Concept and classification of economic activities
2. Location theories with special reference to agriculture (Vonthunen), and industry (Weber)
3. Primary activities: Subsistence and commercial agriculture; forestry (types and management); fishing (distribution of world fishing zones); mining (role of mining in economic development) activity in India
4. Secondary activities: Manufacturing (Cotton textile in India and U.S.A., Iron and steel in India and Japan),
5. Concept of manufacturing region: special economic zones and technology parks
6. Tertiary activities: transport, trade and services
7. Agricultural systems: Case studies of tea plantation in India and mixed farming in Europe
8. Transnational sea-routes; railways and highways with reference to India

GEO/H/CC/T/10: (Theory): Environmental Geography **4 Credits**

1. Environmental Geography: Concept and Scope
2. Perception of environment in different stages of civilization
3. Concept of holistic environment; concept of EIA
4. Ecosystem: concept, structure and functions
5. Environmental pollution and degradation: Land, water and air
6. Environmental issues related to agriculture
7. Urban environmental issues with special reference to waste management
8. Environmental programmes and policies: global (Earth summit, 1992; Montreal and Kyoto protocols), national and local levels.

GEO/H/CC/P/10: (Practical): Environmental Geography **2 Credits**

1. Preparation of questionnaire for perception survey on environmental problems
2. Environmental mapping; Quality assessment of soil using field kit: pH and NPK
3. Interpretation of air quality using CPCB/ WBPCB data
4. A project file consisting of two exercise each is to be submitted.

***A Project File of exercises consisting of each theme is to be submitted**

GENERIC ELECTIVE (GE):

[For Students other than Geography Honours]

GE/04: INDUSTRIAL GEOGRAPHY OR SUSTAINABLE DEVELOPMENT **6 Credits**

GEO/H/GE/T/04/A: (Theory): Industrial Geography **6 Credits**

1. Nature and Scope of Industrial Geography
2. Classification of Industries; Geographical Characteristics: Small and Medium Industries, Heavy Industries, Agro-based Industries, Footloose Industries
3. Location of Industries: Importance and Weber's Theory of Industrial Location
4. Mega Industrial Complexes: Mumbai-Pune industrial Region, Bengaluru- Chennai Industrial Region, Chota Nagpur Industrial Region
5. Environmental Impact of Industrialisation in India
6. Industrial Policy in India (since 1991)

OR

GEO/H/GE/T/04/B: (Theory): Sustainable Development **6 Credits**

1. Sustainable Development: Historical Background, Definition, Components, Limitations
2. Sustainable Regional Development: Needs and significances
3. Inclusive Development: Education and Health
4. Climate change and sustainable development: Policies and global cooperation
5. Poverty and disease; Human right to health; Challenges of Universal Health Coverage
6. Sustainable Development - Policies and Programmes: The proposal for SDGs at Rio+20; Illustrative SDGs; Goal-Based Development
7. Sustainable Development: Financial issues
8. Good Governance for sustainable development
9. National Environmental Policy, Clean development mechanism
10. Sustainable regional resource development and livelihood security

SKILL ENHANCEMENT COURSE (SEC):

SEC/02: (Practical): Advance Spatial Statistical Techniques or Field Work

GEO/H/SEC/P/02/A: (Practical): Advance Spatial Statistical Techniques 2 Credits

1. Differences between Spatial and Non-spatial data, Nearest Neighbour Analysis
2. Concept of probability and Normal Distribution and their geographical application, Skewness (Pearson's Method)
3. Sampling: Sampling plans for spatial and non-spatial data, sampling distributions, sampling estimates for large and small samples tests involving means and proportions
4. Correlation and Regression Analysis: Rank order correlation and product moment correlation; linear regression, residuals from regression
5. Time Series Analysis: Least Squares, Moving mean method, Time series components

Note: Any statistical software package may be used for practice. A project file consisting of five exercises on the above themes is to be submitted.

OR

GEO/H/SEC/P/02/B: (Practical): Field Work 2 Credits

Students are required to carry out a comprehensive field work in a village/mouza/town/C.D.Block/ drainage basin selecting a particular **research problem**. There should be a clear-cut **Problem background, major Objectives, Methodology and Findings**. The text of the fieldwork should not exceed 5000 words and 15-20 pages of illustrations (A4 Pages). The fieldwork along with the diagrams and illustrations should be prepared in computer using the standard (Using MS-Word for typing and Excel for calculation and graphs). The cartographic and statistical techniques used in the fieldwork should be at par with the syllabus of the UG Course.

Guidelines for Fieldwork:

The following methods are to be followed for framework:

1. Preparation of questionnaire for assessing the physical/cultural/environment/socio-economic components. A filled-in questionnaire used in the survey should be attached with the report signed by the concerned teacher and the student.
2. Preparation of maps (hand-drawn) with suitable scale and latitude and longitude.
3. Preparation of charts/graphs in MS-Excel and duly labelled.
4. The report should be typed in MS-Word. The font size is fixed at 12 in Times New Roman and the line spacing 1.5.
5. Each field work

SEMESTER-V

CORE COURSE (CC):

CC/11: RESEARCH METHODOLOGY AND FIELD WORK **6 Credits**

GEO/H/CC/T/11: (Theory): Research Methodology and Field Work **4 Credits**

Unit-I: Research Methodology **2 Credits**

1. Research in Geography: Meaning, types and significance
2. Significance of literature review and formulation of research design
3. Defining research problem, objectives and hypothesis; Research materials and methods
4. Structure of research report: Title, Acknowledgement, Abstract and Key-words, Introduction, Literature Survey, Methodology, Result and Discussion, Conclusion including Recommendations and Suggestions, References and Bibliography (APA style)

Unit-II: Fieldwork **2 Credits**

1. Fieldwork in Geographical studies – Role and significance; Selection of study area and objectives; Pre-field preparations; Ethics of fieldwork
2. Field techniques and tools: Observation (participant, non participant), questionnaires (open, closed, structured, non-structured); Interview with special reference to focused group discussions
3. Field techniques and tools: Landscape survey using transects and quadrants, relevant constructing sketches, diagrams, photographs and video recording
4. Designing a field report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the report

GEO/H/CC/P/11: (Practical): Research Methodology and Field Work **2 Credits**

1. 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) based on cadastral or municipal maps to study specific problems.
2. The duration of the field work shall not exceed 10 days
3. The report should be hand written in English on A4 size paper in candidate's own words within 5,000 to 8,000 words excluding tables, diagrams, maps, photographs, references and appendices
4. A copy of the bound report on A4 size paper, duly signed by the concerned teacher, should be submitted

i. Maps and Diagrams not exceeding 20 pages

ii. Photographs not exceeding 5 pages

iii. No dry letter to be permitted

CC/12: REMOTE SENSING AND GIS **6 Credits**

GEO/H/CC/T/12: (Theory): Remote Sensing and GIS **4 Credits**

Unit-I: Remote Sensing **2 Credits**

1. Definition and stages of Remote Sensing (RS); Platforms and Sensors
2. Sensor resolutions and their applications with reference to IRS and LANDSAT missions, image referencing schemes and data acquisition
3. Aerial Photographs: Types, Geometry and photo interpretation keys; Concept of FCC
4. Principles of Image interpretation (Visual and Digital)

Unit-II: Geographical Information Systems and Global Navigation Satellite System

2 Credits

1. GIS data structures: types (spatial and non - spatial), raster and vector
2. Principles of preparing attributes tables, data manipulation and overlay analysis
3. Principles of GNSS positioning and waypoint collection; Transferring of waypoints to GIS.

GEO/H/CC/P/12: (Practical): Remote Sensing and GIS **2 Credits**

1. Georeferencing of map
2. Digitisation of features: Point, Line and Polygon
3. Data attachment overlay and preparation of thematic map (bargraph, pie-chart and choropleth)
4. Preparation of FCC using IRS LISS-III and/or LANDSAT (ETM+) data
5. Preparation of LULC map by Supervised Image Classification (Maximum Likelihood) using IRS LISS-III or LANDSAT (ETM+) data

[**Note: Using Q-GIS (open access) software**]

DISCIPLINE SPECIFIC ELECTIVE (DSE):

DSE/01: URBAN GEOGRAPHY OR CULTURAL AND SETTLEMENT GEOGRAPHY 6 Credits

GEO/H/DSE/T/01/A: (Theory): Urban Geography **6 Credits**

UNIT-I **3 Credits**

1. Urban Geography: Nature, Scope, Approaches and recent trends
2. Theories of Urban Morphology: Concentric Zone Theory, Sector Theory and Multiple Nuclei Theory
3. Concept of Hierarchy; Christaller's Central Place Theory
4. Rank Size Rule; The Law of the Primate City
5. Patterns of urbanisation in developed and developing countries

UNIT-II **3 Credits**

1. Ecological process of urban growth
2. City Region: Concept, Structure and Characteristics
3. Patterns and trends of urbanization in India
4. Case studies of Delhi, Kolkata with reference to Land use and Urban issues (housing, slum)
5. Urban renewal programme - JNNURM

OR

GEO/H/DSE/T/01/B: (Theory): CULTURAL AND SETTLEMENT GEOGRAPHY 6 Credits

Unit-I: Cultural Geography **3 Credits**

1. Definition, Scope and Content of Cultural Geography
2. Development of cultural geography
3. Cultural Hearth and Realm; Cultural diffusion: process and types
4. Cultural segregation and cultural diversity; Culture, technology and development
5. Major racial groups of the world: Distribution and characteristics

Unit-II: Settlement Geography **3 Credits**

1. Settlement Geography: Scope and Content
2. Morphology of rural settlements: layout-internal and external
3. Rural house types with reference to India
4. Urban Settlements: Census definitions (Temporal)
5. Urban morphology: Classical models-Burges, Homer Hoyt, Harris and Ullman, Functional classification of cities: Harris, Nelson and McKenzie

DSE/02: POPULATION GEOGRAPHY OR SOCIAL GEOGRAPHY **6 Credits**

GEO/H/DSE/T/02/A: (Theory): Population Geography **6 Credits**

UNIT-I **2 Credits**

1. Development of Population Geography as a field of specialization; Relation between population geography and demography; Sources of population data with special reference to India (Census, Vital statistics and NSS)
2. World patterns determinants of population distribution and growth; Concept of optimum population
3. Demographic Transition Model; Theories of population growth: Malthusian and Marxian theory
4. Population distribution, density and growth profile in India

UNIT-II **4 Credits**

1. Population Composition and Characteristics: Age-Sex Pyramid; Female-Male Ratio
2. Determinate measures of Fertility and Mortality
3. Population Composition of India: Rural and Urban, Occupational Structure as per Census of India
4. Migration: Theories, Causes and Types
5. Concept of Human Development Index
6. Population and development: population-resource regions
7. Population policies in Selected Countries: India and China
8. Contemporary Issues in Population: Health and Unemployment

OR

GEO/H/DSE/T/02/B: (Theory): Social Geography **6 Credits**

UNIT-I **3 Credits**

1. Social Geography: Nature, Scope and Content
2. Social Groups and Social Behaviour
3. Concept of Social Structure and Process
4. Elements of Social Structure: Caste, Class, Religion, Race
5. Social Stratification in India
6. Contemporary Social-environmental Issues with references to India

UNIT-II **3 Credits**

1. Concept of Social Well-being, Quality of Life
2. Indicators of Social Well-being after Knox and Smith
3. Social Geographies of Inclusion and Exclusion
4. Social Pathology: Crime and Violence
5. Social Impact Assessment (SIA): Concept and Importance
6. Social Policies in India: Sarva Shiksha Abhiyan (SSA) and National Rural Health Mission (NRHM)

SEMESTER-VI

CORE COURSE (CC):

GEO/H/CC/T/13: (Theory): Evolution of Geographical Thoughts **6 Credits**

Unit-I: Nature of Pre Modern Geography **2 Credits**

1. Development of Geography and contributions of Greek, Chinese and Indian geographers
2. Impact of 'Dark Age' on Geography and Arab contributions
3. Geography during the Age of 'Discovery' and 'Exploration' (Contributions of Portuguese Voyages, Columbus, Vasco da Gama, Magellen, Thomas Cook)
4. 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)

Unit-II: Foundations of Modern Geography and Recent Trends **4 Credits**

1. Evolution of Geographical thoughts in Germany, France, Britain and United States of America
2. Contributions of Humbolt and Ritter
3. Contributions of Ratzel, Richthofen and Hettner
4. Schools of Geographical thought: French, British and American
5. Trends of Geography in the post World War-II period
6. Evolution of Geographical thought in India
7. Quantitative Revolution and its impact; the perspectives of Behaviouralism, Systems approach, Radicalism and Feminism in Geography
8. Towards Post Modernism: Changing concept of space in Geography; Geography in the 21st Century

CC14: DISASTER MANAGEMENT **6 Credits**

GEO/H/CC/T/14: (Theory): Disaster Management **4 Credits**

Unit-I: Concepts **2 Credits**

1. Classification of Hazards and Disasters
2. Approaches to hazard study: Risk perception and vulnerability assessment; Hazard paradigms
3. Responses to hazards and disasters: Preparedness, trauma and aftermath; Resilience and capacity building
4. Hazards mapping: Data and techniques

Unit-II: Disaster Case Studies **2 Credits**

1. Earthquake: Factors, vulnerability, consequences and management
2. Landslide: Factors, vulnerability, consequences and management
3. Cyclone: Factors, vulnerability, consequences and management
4. Fire: Factors, vulnerability, consequences and management

GEO/H/CC/P/14: (Practical): Disaster Management **2 Credits**

An individual Project Report based on any one case study among the following disasters incorporating a preparedness plan in the vicinity of the candidate's institution or residence:

1. Thunderstorm	2. Landslide	3. Flood
4. Coastal / river bank erosion	5. Fire	6. Industrial accident
7. Structural collapse		

DISCIPLINE SPECIFIC ELECTIVE (DSE):

DSE/03: FLUVIAL GEOMORPHOLOGY OR RESOURCE GEOGRAPHY 6 Credits

GEO/H/DSE/T/03/A: (Theory): Fluvial Geomorphology 6 Credits

1. Scope and significance of Fluvial Geomorphology; Concept of Fluvial Hydrosystem; Geographers approach to study of the rivers
2. Run off: components and controlling factors; Run off cycle
3. Channel pattern: types and controlling factors
4. Drainage basin and its significance as a hydrological unit
5. Linear, areal and altitudinal properties of drainage basin; Horton's stream laws; Hypsometric curve
6. Fluvial landforms: Terraces, alluvial fans, badlands and accretion topography
7. River bank erosion: management and its impact on land use
8. Integrated watershed management: Principles and significance

OR

GEO/H/DSE/T/03/B: (Theory): Resource Geography 6 Credits

UNIT-I 3 Credits

1. Natural Resources: Concept and Classification
2. Approaches to resource utilisation :Utilitarian, conservational, community based adaptive
3. Conservation of Natural Resources – Need and Significance
4. Problems of resource depletion - Global scenario (forest, water, fossil fuels)

UNIT-II 3 Credits

1. Distribution, Utilisation, Problems and Management of Metallic Resources: Iron ore, Bauxite
2. Distribution, Utilisation, Problems and Management of Non-Metallic Mineral Resources: Mica, Gypsum
3. Problems and Management of Energy Resources: Conventional and non-conventional
4. Contemporary Energy Crisis and Future Scenario
5. Limits to Growth and Sustainable use of Resources

DSE/04: SOIL AND BIO GEOGRAPHY OR AGRICULTURAL GEOGRAPHY 6 Credits

GEO/H/DSE/T/04/A: (Theory): Soil and Bio Geography 6 Credits

1. Factors of soil formation; Man as an active agent of soil transformation
2. Concept of soil profile; origin and profile characteristics of Lateritic, Podzol and Chernozem soils
3. Definition and significance of soil properties: Texture, structure and moisture
4. Definition and significance of soil properties: pH, organic matter and NPK
5. Soil erosion and degradation: Factors, processes and mitigation measures
6. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification
7. Concepts of ecology, biosphere, ecosystem, biome, ecotone, community
8. Concept of trophic structure, food chain and food web; Energy flow in ecosystems
9. Geographical extent and characteristic features of Tropical rain forest, Taiga and Grassland biomes
10. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen
11. Deforestation: Causes, consequences and management
12. Bio-diversity: Definition, types, threats and conservation measures

OR

GEO/H/DSE/T/04/B: (Theory): Agricultural Geography **6 Credits**

UNIT-I **2 Credits**

1. Progress of Agricultural Geography with reference to allied disciplines; Approaches to study of Agricultural Geography
2. Origin and dispersal of agriculture; Role of agriculture on human society
3. Factors affecting agriculture; Classification of world agricultural systems
4. Location and characteristics of major agricultural types: Intensive subsistence, Extensive commercial and Plantation agriculture.

UNIT-II **4 Credits**

1. Concept of cropping pattern, crop combination, gross and net cropped area, crop rotation
2. A critical review and contemporary perspective of Von Thunen's model
3. Definition and factors affecting yield; Measures of agricultural productivity
4. Role of irrigation in agriculture with special reference to India
5. Problems of agriculture with special reference to South Asian Countries
6. World patterns of agricultural production and food security
7. Land use survey and land classification (USDA)
8. Globalization and Agriculture with special reference to India