

TRIPURA UNIVERSITY
DEPARTMENT OF GEOGRAPHY AND DISASTER MANAGEMENT

RET SYLLABUS

GEOMORPHOLOGY		
Sl. No.	THEME	SUB-THEME
1.	Fundamentals of Geomorphology	1. Introduction to Geomorphology: Meaning and Historical Development 2. Concepts Relating to Processes and Forms 3. Applied Geomorphology: Nature, Scope and Significance
2.	Geo-Tectonics	1. Orogenesis and Sea-floor Spreading: Plate Tectonics 2. Earthquake and Vulcanicity
3.	Denudational Processes	1. Weathering: Physical, Chemical and Biological 2. Mass Movement: Creep, Flows, Falls and Slides 3. Erosion, Transportation and Deposition
4.	Evolution of Landforms	1. Fluvial, Glacial, Periglacial, Karst, Aeolian and Coastal 2. Models of Slope Evolution: Davis, Penck, King 3. Uniclinal, Folded and Domal Structure
5.	Environmental Changes	1. Causes and Impact on Landforms
<p>Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London. Holmes: Physical Geology Kale, V. S. and Gupta, A. (Rep.2011): Introduction to Geomorphology, Orient Longman, Calcutta. Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York. Ollier, C. D. (1981) Tectonics and Landforms, Longman , London</p> <p>Savindra Singh (Rep. 2011): Geomorphology, Prayag Pustak Bhawan, Allahabad Spark B. W. (1972): Geomorphology, Longman, New York Steers, J.A. (1937) The Unstable Earth, Methuen and Co., Ltd, London. Strahler A. H and Strahler, A. N. (1992) : Modern Physical Geography, John Wiley, New York Thornbury, W. D. (Rep.2011): Principles of Geomorphology, John Wiley and Sons, New York. Wooldridge and Morgan: Geomorphology</p>		

POPULATION AND SETTLEMENT GEOGRAPHY		
Sl. No.	THEME	SUB-THEME
Group A: POPULATION GEOGRAPHY		
1	Definition and Scope of Population Geography	1. Population Geography and Demography 2. Population and its Relationship with other Disciplines
2	Sources of Population Data	1. International Sources of Population Data, 2. Sources of Population Data in India: Census of India, Civil Registration System, NSS and NFHS 3. Data Reliability and Comparability
3	Population Composition	1. Linguistic and Religious 2. Age and Sex 3. Rural and Urban

		4.Labour Force and Occupational Structure 5.Demographic Characteristics: Developed and Developing Countries
4	Population Growth	1. Computation of Population Growth and Population Projection 2.Decennial and Annual Growth Rates 3.Population Growth in India since Independence 4.Spatial Patterns of Population Growth in India
5	Fertility and Mortality	1.Measurement 2.Malthusian Views 3.Demographic Transition 4.Fertility and Mortality – Spatial and Temporal Trends in India
6	Population and Resources	1.Measurement of Population Pressure on Resources 2.Gross Population Density 3.Population and Agricultural Resources: Case of India
Group B: SETTLEMENT GEOGRAPHY		
7	Study of Human Settlements	1.Objectives and Scope 2.Types of Settlement: Urban and Rural 3.Rural Urban Fringe 4. Rural-Urban Continuum
8	Urban Settlement System	1.Rank Size Principles 2.Central Place Theory: Concepts of Threshold and Range 3.Settlement Hierarchy
9	Internal Structure of Towns	1.Concentric, Sector and Multiple Nuclei Models
10	Rural Settlements	1.Villages and Hamlets 2.Distribution Pattern of Rural Settlements 3.Near Neighbour Analysis 4.Environment and House types – Illustrations from India
References		

STATISTICAL TECHNIQUES AND CARTOGRAPHY		
Sl. No.	THEME	SUB-THEME
1	Spatial Sampling	1.Probability and Purposive Sampling 2.Random, Systematic and Stratified
2	Centrographic Measures	1.Mean and Median Centre, Standard Distance
3	Geographical Data Matrices	1.Attribute/ Structural Matrix 2.Interaction/ Behavioural Matrix
4	Association and Correlation	1.Chi-square Analysis 2.Scatter Diagram 3.Rank and Product Moment Correlation 4.Regression and Residuals
5	Network Analysis	1.Concept of Graph Theory and Transport Network 2.Drainage Basin Analysis: Stream Ordering, Bifurcation Ratio
6	Spatial Simulation	1.Deterministic and Probabilistic Models

NATURAL RESOURCE MANAGEMENT		
Sl. No.	THEME	SUB-THEME
1	Concept and Classification of Resource	1. Resource: Meaning and Changing Concepts 2. Classification of Resource: Bases of Classification and Classification Scheme
2	Natural Resources	1. Population Growth and Natural Resource Use 2. Major Natural Resources: Distribution and Availability/ Production of Land, Forest, Water, Energy and Marine Resources
3	Conservation and Management of Resources	1. Concept and Importance of Conservation and Management of Resources 2. Conservation of Renewable and Non-renewable Resources
4	Resource Regions of India	1. Distribution of Resources in India 2. Major Resource Regions of India 3. Resource Use in North- East India
5	Resource Conservation Policies	1. Global Policies 2. National and Regional Policies in India

REGIONAL GEOGRAPHY OF INDIA		
Sl. No.	THEME	SUB-THEME
1	Concept of Region	1. Area, Region and Space 2. Techniques of Grouping, Classification and Regionalisation
2	Physical Regions	1. Comparison of O H K Spate's and R L Singh's Schemes
3	Agro Climatic Regions	1. Parameters for Classification, 2. Macro Agro-climatic Regions: Detailed Study of any Two Regions
4	Industrial Regions	1. Industrial Corridors and Manufacturing 2. IT Parks 3. Special Economic Zones as Industrial Regions
5	Cultural Regions	1. Cultural Regionalisation of India : Variables and Methods 2. Approach of R K Mukherjee and J E Schwartzberg
6	Regional Disparities	1. Grouping Districts on the basis of Development: Indicators and Methods 2. Concept of Backward Regions: Case Study of KBK, North Bengal

Unit-VI: INDUSTRIAL GEOGRAPHY		
Sl. No.	THEME	SUB-THEME
1	Classification of Industries	1. Manufacturing and Industry 2. National Industrial Classification System
2	Location Theories	1. Deterministic and Behavioural Models
3	Special Economic Zones	1. Industrial Policy in Plan Periods 2. Concept, History and Evolution, SEZ Act in India and Issues 3. Industrial Corridor-Territorial Production Complex 4. Policy Framework and Current Status
4	Industrial Pollution	1. Clean Technology 2. Location and Re-location of Polluting Industry 3. Concept of Polluters Pay

5	Global Production Network	1.Impact of Globalisation on Indian Industry 2.Concept, Status of India in GPN
6	Case Studies	1.Apparel Industry 2.IT Industry

Unit-VII: CLIMATOLOGY AND OCEANOGRAPHY

Sl. No.	THEME	SUB-THEME
Group A: CLIMATOLOGY		
1	Meaning and Importance of Climatology	1.Meaning, Scope and Development of Climatology 2. Importance of Climatology in the Present Global Environmental Context
2	Structure of the Atmosphere	1.Composition 2.Vertical Structure
3	Planetary Energy Budget	1.Nature of Radiation 2.Energy Balance of the Earth's Surface
4	Atmospheric Temperature, Pressure and Wind Systems	1.Horizontal and Vertical Distribution of Temperature 2.Pressure Distribution 3.Planetary Wind Systems 4.Monsoon with reference to Jet Stream and ENSO Phenomena
5	Classification of World Climate	1.Approaches to Climatic Classification 2.Koppen's and Thornthwaite's Systems
6	Climate Change	1.Meaning and Trend of Climate Change 2.Global Warming 3.Response to Climate Change: Issues and Challenges

Group B: OCEANOGRAPHY		
7.	Nature and Importance of Oceanography	1.Meaning and Scope of Oceanography 2.Importance of Oceanography as branch of Physical Geography
8	Bottom Configuration of Oceans	1.Features of Ocean Bottom: Continental Shelf, Slope, Deep Sea Floor, Submarine Ridge and Trench 2.Bottom Configuration of Indian, Atlantic and Pacific Oceans 3.Coral Reefs
9	Temperature and Salinity Distribution of Oceans	1. Temperature Distribution of Ocean Water: Indian Ocean and Atlantic Ocean 2. Salinity of Ocean Water: Indian and Pacific Oceans
10	Oceanic Circulation	1. Waves and Tides 2. Ocean Currents: Causes and Effects with Special Reference to Indian Ocean and Atlantic Ocean 3.Sea Level Change
11	Marine Resources	1.An Outline of Marine Resources 2.Fish and Mineral Resource 3.Conservation of Marine Resources 4. EEZ, CRZ: Importance

Unit-VIII: SOCIAL AND POLITICAL GEOGRAPHY		
Sl. No.	THEME	SUB-THEME
Group A: SOCIAL GEOGRAPHY		
1	Nature and Scope of Social Geography	1.Defining Social Geography 2.Development of Social Geography in India
2	Elements of Social Geography and Concept of Social Differentiation	1.Caste, Tribe and Religion 2.Socio-Cultural Regions of India
3	Society, Gender and Geography	1.Gender Issues in Education, Health, Employment and Empowerment
Group B: POLITICAL GEOGRAPHY		
4	Evolution of Political Geography	1.Contribution of Ratzel, Huntington, Taylor and Harvey
5	Concept of Nation-State	1.Nation, Nation-State, Nationalism and Nation Building 2.Territorial State and Globalisation
6	Frontiers and Boundaries	1.Nature and Functions 2.Classification and Hierarchy of Boundaries
7	Electoral Geography	1.Electoral Systems 2. Voting Pattern Analysis
8	Geopolitics and Geo-Strategy	1.Contemporary Relevance of Views of Mackinder and Spykman 2.Global Conflicts and Negotiations

Unit-IX: QUANTITATIVE TECHNIQUES AND CARTOGRAPHY		
Sl. No.	THEME	SUB-THEME
1	Indices of Concentration and Dispersion	1.Location Quotient 2.Lorenz Curve and Gini Coefficient
2	Data Transformation	1.Normalisation and Standardization of Data
3	Rank-Size Rule	1.Zipf's Rank-Size Rule, Primacy 2.Expected and Actual Population Distribution
4	Gravity and Potential Concepts	1.Gravity Model 2.Population Potential: Mapping and Interpretation
5	Classification	1.Weaver's Crop Combination Technique 2.Ashok Mitra's Classification of Towns 3.Nelson's Functional Classification of Towns
6	Index of Sustainability	1.Computation and Interpretation at Macro and Micro Levels

Unit-X: GEOGRAPHY OF NORTH EAST INDIA AND TRIPURA		
Sl. No.	THEME	SUB-THEME
Group A: GEOGRAPHY OF NORTH EAST INDIA		
1	Introducing North East India	North East India as a Region Locational and Strategic Significance of North East India
2	Physical Environment	Geology and Topography Climate and Natural Vegetation River Systems
3	Population Growth and Distribution (Inter-state comparison)	Population Growth and Distribution Population Density: Rural and Urban Scenario Population Migration: Emerging Problems
4	Natural Resource Base and Management	Water Resources: Potentiality and Use Sustainable Use of Forest Resources Mineral Resources: Potentiality and Use Management of Resources: geographical Issues and Challenges
Group B: GEOGRAPHY OF TRIPURA		
1	Introducing Tripura	Position of Tripura in North-East India Tripura's Uniqueness
2	Physical Setting	Geology and Soil Topography and Drainage Climate Natural Vegetation Biodiversity
3	Population Growth and Distribution	Population Growth Population Distribution and Density Population Migration
4	Economic Development	Distribution and Use of Resources (Forest, Water and Mineral) Agricultural Development: Sedentary and Shifting Cultivation, Productivity and Output of Major crops –Rice, Oil seeds, Potato and Plantation Crops-Tea and Rubber Industrial Development: Constraints and Future Prospects Transport and Communication

Unit-XI: SOIL AND BIO-GEOGRAPHY		
Sl. No.	THEME	SUB-THEME
Group A: SOIL GEOGRAPHY		
1	Introducing Soil Geography	1. Soil Geography as a branch of Physical Geography 2. Significance of Soil Geography
2	Soil Forming Process	Factors of Soil Formation Weathering as a Process of Soil Formation Soil Profile Development: Podzol, Laterite and Chernozem
3	Soil Classification	Genetic System of Classification Modern System of Classification Major Soil Groups of India: Alluvial Soils, Black Soils, Red Soils, Laterite Soils, Desert Soils, Peat and Marshy Soils
4	Soil and Environmental Problems	Soil Pollution, Soil Erosion and Environmental Degradation Shifting Cultivation and Problem of Soil Erosion Sustainable Use of Soil Resource
Group B: BIOGEOGRAPHY		
1	Introducing Biogeography	1. Meaning, Scope and Development of Biogeography
2	Distribution of Plants and Animals	Factors affecting Distribution Dispersal and Migration of Plants and Animals Phytogeographical and Zoogeographical Regions
3	Biodiversity	Concept and Significance Biodiversity in Mountain, Grassland, Wetland and Coastal Ecosystems Factors of Biodiversity Loss
4	Conservation of Forest and Wildlife	1. Issues and Strategies of Conservation 2. Conservation of Forests: Afforestation, Agro-forestry, Social Forestry 3. Conservation of Wildlife: Protected Areas, Eco-restoration 4. Conservation Policies in India: Wildlife Act, Biodiversity Act and Other Related Policies

Unit-XII: PHILOSOPHY OF GEOGRAPHY

1. Evolution of Geographical Thought:

Geographical concept in Ancient India, Greek, Roman and Medieval; Changing Paradigm; Spatial Organization; Geography as an integrating Science.

2. Dualism in Geography:

Systematic vs Regional, Physical vs Human, Idiographic vs Nomothetic, Concept of Region and Regionalisation.

Philosophical debates in Contemporary Geography: Positivism, Behaviouralism, Marxism, Post Structuralism, Post Modernism.

Geographical Analysis and future of Geography:

Quantitative and Qualitative, Field and Cartography, Future of Geography in Globalised world.

Progress and Contribution in Indian Geography.

Unit- XIII: REMOTE SENSING AND GIS

Unit 1 Aerial Photography:

Principles, Stereoscope, Photo Mosaicing, Photo Interpretation.

Unit 2 Remote Sensing:

Principles, Resolutions, Sensors, Visual Interpretation and application on Landuse changes, Urban studies, Geomorphology and Geology.

Unit 3 Digital Image Processing:

Image correction, Filtering/ Image Enhancement, Supervised and Unsupervised classification.

Unit 4 Geo-Spatial Databases:

Data entry and map composition; Digitizing, Scanning, Editing, Plotting and map making, Topology, Raster and Vector database structures and conversions (Point, Line, Area), Buffer Zones in Raster and Vector models.

Unit 5 GIS and Spatial Analysis:

Concept of DEM, DTM, TIN; Overlay analysis, Boolean operations, Spatial Analysis- GIS application - Land information system, resource management application, environmental GIS and Urban GIS.

Unit-XIV: AGRICULTURAL GEOGRAPHY

Unit 1 : Determinants of Agricultural Land use

Physical, socio-economic and technological, crop combination, crop diversification, agricultural productivity and efficiency, Land holdings, Land reforms, Land Policy

Unit 2 : Agricultural Regionalization Criteria, Land capability classification, Whittlesey's agricultural regions, agricultural typology, Agricultural regions of India

Unit 3 : Models in Agricultural Geography

Von Thunen theory of agricultural location and its modification, innovation and diffusion model in agriculture

Unit 4 : Agricultural Productivity and Trends

Green Revolution, Blue, White, Yellow, Pink, smart agriculture, environmental implications of green revolution

Unit 5 : Perspective of Agricultural Development

Diversification of crop, agri-business, farm technology, sustainable agriculture (organic farming), Krishi Vigyan Kendra

Unit XV: HYDROLOGY AND WATER RESOURCE MANAGEMENT

Unit 1 Hydrological Cycle:

Precipitation intensity and duration, Evaporation, Infiltration, Evapotranspiration, Runoff.

Unit 2 Water Balance Elements and Analysis:

Water balance analysis, Flood and Drought Analysis

Unit 3 Groundwater occurrence and types:

Hydrogeological cycle, Movement, Darcy's law, Ground water recharge, Water Quality, Types of aquifer, Salinization, Sea water intrusion, Distribution of groundwater in India.

Unit 4 River basin Hydrology:

Major river basins, Surface water potential, Characteristics.

Unit 5 Water Resource Conservation and Management:

Application of Remote Sensing and GIS in Hydrological studies, Water Harvesting, Integrated Watershed Management, National Water Policy, National Water Grid

Unit-XVI: ENVIRONMENT AND DISASTER MANAGEMENT

GROUP A (Environmental Science)

Unit 1

Environment, Ecosystem, Human Ecology, Environmental perceptions and behavior, Man-environment relationship – Case study of mountain ecosystem.

Unit 2

Environmental Policy of 1986 and 2006, Sustainable Developmental goals, Wildlife Act, Biodiversity Act, Climate change negotiation under COP21, National Action Plan on Climate Change

GROUP B (Disaster Management)

Unit 3 :Hazard, disaster, vulnerability, exposure, risk, types of hazard

Unit 4 :Major disasters – Flood, Drought, Earthquake, Landslide and cyclones; Human and Technological hazards

Unit 5 : Disaster Risk Reduction, prediction and early warning, preparedness, mitigation, recovery and rehabilitation, community based disaster mitigation plan, Disaster Insurance Policy.