



EWING CHRISTIAN COLLEGE, PRAYAGRAJ
DEPARTMENT OF GEOGRAPHY

M. A.

GEOGRAPHY

SEMESTER – I

FIRST PAPER

Advanced Geomorphology (Core – Physical)

UNIT I

Methods and approaches to the study of landforms; Basic concepts in geomorphology: Structures, Processes and Scales (Stage/Time); Theories of landscape development.

UNIT II

Concept of Plate tectonics; Mass movement of rock waste and resultant landforms; Concept, Evolution and Classification slopes; Theories of slope development.

UNIT III

Fluvial (Process) Geomorphology – Morphometry of drainage basins; Profile of equilibrium; Channel morphology; Climatic Geomorphology and Morphogenetic regions.

UNIT IV

Structural Geomorphology–Fold, Fault and Domal Structures and Landforms; Palaeo and Neo–Geomorphology – Denudation Chronology of peninsular India and Himalayas.



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M. A.

GEOGRAPHY

SEMESTER – I

SECOND PAPER

Geographical Thought (Core – Human)

UNIT I

Development of Geography in second half of the 20th century; Concept of Paradigm and Paradigm shift, Paradigm shift in Geography, Positivism & Logical Positivism, Quantitative Revolution, Models, System Analysis in Geography.

UNIT II

Reactions to Quantitative Revolution, Behavioural Geography – Cognition, Perception, Mental Maps, Decision making and Behaviour, Time – Space Geography, Humanistic Geography – Idealist & Phenomenological Approaches.

UNIT III

Radical Geography, Structuralism, Realism, Functionalism, Welfare Geography, Post – Modernism.

UNIT IV

Modern Developments, Applied Geography and Relevance Debate, Spatial Inequality and Regional Imbalances, Geographers and Policy, Regional Planning, Feminist Geography, Future of Geography.



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SEMESTER – I

THIRD PAPER

India (Core – Regional)

UNIT I

Physiographical & Structural Regions of India; Indian Monsoon – Origin, Pattern & Forecast; Floristic Regions; Forest products: Classification of Indian soil; Problems – soil erosion and conservation; National Forest & Soil Policy.

UNIT II

Indian Agriculture; New Trends – Dry land farming, Green – White Revolutions, Eco-Farming; Agro-Climatic & Agro- Ecological Regions; Conventional and Non-Conventional Energy – Production & Distribution; Distribution and Production of mineral resources; locational factors of Indian Industries; Industrial Regions.

UNIT III

Urban & Rural Settlements – Types, & Patterns; Urbanisation in India, Primate City, Functional Classification, Urban Morphology; Problems of Rural – Urban Settlements; National Policies & Programmes; Origin and Dispersal of Races in India; Cultural heaths & regions; Major Tribes – Distribution and Classification.

UNIT IV

Five year planning in India: Achievements and Failures; Multi-Level Planning: Planning at National, State, District, Block and Panchayat level; Planning Regions – Bases of delimitation & Classification.



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GEOGRAPHY

SEMESTER – I

FOURTH PAPER

North America (Elective 'E1')

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of U. S. A., Canada & Mexico.



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SEMESTER – I

FOURTH PAPER

South America (Elective 'E2')

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of Brazil, Argentina & Venezuela



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GEOGRAPHY

SEMESTER – I

FIFTH PAPER

Practical (Lab)

SECTION – A: LABORATORY WORK

UNIT – I: Cartography:

1. Earth and its coordinate System: Definition and classification of projections; Mathematical construction and characteristics of Polar Zenithal Gnomonic, Polar Zenithal Stereographic and Polar Zenithal Orthographic Projections.

2. Mapping of Point Data

UNIT – II: Spatial Statistical Techniques:

1. Analysis of Drainage Network : Drainage Network-bifurcation ratio, length ratio, drainage density, drainage texture, Stream Frequency;

2. Altimetric Analysis: Relative Relief, Dissection Index and Analysis of Average Slope; Area-Height diagram, Hypsometric curve, clinograph.

UNIT – III: Physics of Remote Sensing & Digital Data Analysis:

1. Basics of Remote Sensing: Stages of Remote Sensing, Electromagnetic Radiation, Spectral Regions, Atmospheric windows, Radiation quantities, Radiation laws, Platforms & Sensors and their spatial, spectral, temporal & radiometric resolutions.

2. Types of matrices, Simple arithmetic operations, Simultaneous equation through matrix.

SECTION – B: FIELD WORK

1. Surveying of Planimetric details - Graphic triangulation by Johnsons plane table, plotting of details in triangulated Area, Methods of Resection.



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DEPARTMENT OF GEOGRAPHY

M. A.
GEOGRAPHY
SEMESTER –II
FIRST PAPER

Advanced Climatology (Core – Physical)

UNIT I

Meaning and scope of Climatology; Composition and Structure of Atmosphere; Radiation Laws – Wave, Particle, Stefans-Boltzman & Weins Law; Solar Constant; Adiabatic temperature change and Gas Law; Stability and instability; Process of Precipitation; Theories of origin of precipitation and related forms;

UNIT II

Air masses – Origin, growth, classification and distribution. Fronts and frontogenesis; Cyclones and anticyclones – Theories about the origin of temperate cyclones; Upper air circulation and jet stream; Origin of Indian Monsoon.

UNIT III

Climatic Classification of Koppen, Thornthwaite and Strahler; Major climate types and biomes; Weather analysis and Weather forecasting; Weather and human behaviour; Weather modification.

UNIT IV

Climatic change – Causes and theories; Global warming – Evidences, causes and effects; Atmospheric Hazards and Disasters – Tropical Cyclones, tornadoes, thunderstorms and cloud-bursts; El-Nino, La-Nina, Walker Circulation, Southern Oscillation.



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SEMESTER –II

SECOND PAPER

Urban Geography (Core – Human)

UNIT I

Meaning, scope, approaches of study & Development of Urban Geography: Theories of urban origin: early urban hearths, the forms of postmodern city; Urban development model - cycle and stages; Types of urbanised regions.

UNIT II

National urban systems; Functional typology; Central place theory; urban settlement spread theories; Urban hierarchy, Rank size rule and Primate City distribution.

UNIT III

Ecological models of Burgess, Hoyt, Harris and Ullman, Manu, Vance and White; Internal structure of city in South Asia.; Rural – urban fringe; Concept of city region and its delimitation.

UNIT IV

Third world urbanization and Theories of urbanization, peripheral, exo and implosion urbanisation, Urban economy and informal sector in Third world city; Third world urban problems, Concept of garden city and new town.



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SEMESTER –II

THIRD PAPER

Population Geography (Core – Systematic)

UNIT I

Nature and scope of population geography; Sources of population data; Methodological problems; Recent developments in population geography; Development of population geography in India;.

UNIT II

Population growth and distribution – Classical and modern theories; World patterns and their determinants; Concepts of ‘under’, ‘over’ and ‘optimum’ population; Population composition.

UNIT III

Population Dynamics – Measurement of fertility and mortality; Migration – Causes, types, national and international patterns, rural and urban dimensions.

UNIT – IV

Population-Resource regions; Population planning; Population policies in under-developed and developed countries; Population and socioeconomic development; Population and human resource; Human development index.



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SEMESTER –II

FOURTH PAPER

West Asia (Elective ‘E1’)

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of Iraq & Iran



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SEMESTER –II

FOURTH PAPER

East Asia (Elective ‘E2’)

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of China & Japan.



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DEPARTMENT OF GEOGRAPHY

M. A.
GEOGRAPHY
SEMESTER –II
FIFTH PAPER
Practical (Lab)

SECTION – A: LABORATORY WORK

UNIT – I: Cartography:

1. Earth and its coordinate System: Mathematical construction and characteristics of Conical Two Standard, Bonne's and Polyconic Projections.
2. Mapping of Volume data : Choropleth and Isopleth Mapping.

UNIT – II: Spatial Statistical Techniques:

1. Analysis of Data: methods of data collection and compilation –census, sample survey; Analysis of point pattern: Mean-centre standard deviation, nearest neighbour analysis, quadrant counts method, population potential.
2. Analysis of line Network: Transport network – cyclometric number, L.B.V. index.

UNIT – III: Digital Satellite Image & Digital Data Analysis:

1. Digital Image Processing: Definition, satellite imagery, structure of digital image, digital data formats – BSQ, BIP & BIL, advantages of digital image, hard & soft copy, Digitization - conversion of hard copy to soft copy.
2. Digital Image Enhancement: Methods of Contrast Enhancements: Linear and Non – linear Contrast Enhancement technique, Histogram Equalization and Band Ratioing.

SECTION – B: FIELD WORK

1. Surveying: Plotting of Altimetric details- Establishment of Bench mark ,spot heights and, Profiling by Level, Mapping by Telescopic Alidade and Johnsons plane table.



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GEOGRAPHY

SEMESTER – III

FIRST PAPER

Advanced Oceanography (Core – Physical)

Unit – I: Oceanography and Geophysical aspects of Oceans

Definition and scope of Oceanography; Historical development of oceanography; Distributional patterns of land and oceans; Plate tectonics and origin of oceans; Depth zones and Hypsometric Curve; Submarine canyons; Bottom relief of oceans; Ocean Deposits.

Unit – II: Properties of Ocean Waters

Chemical composition of ocean waters; Temperature of sea-waters; Salinity of sea-waters; Sea-water density and water masses; Sea Waves; Tides: origin, types and prediction; Oceanic Currents: Causes and Controlling factors, General Patterns of Circulation; El Nino and La Nina;

Unit – III: Marine Ecology

Oceans as Ecosystems; Marine Biota; Zonation of the sea; Energy flow: Food Chains and Food Webs; Mangroves and Estuarine Ecology; Coral Reefs: Formation, distribution, importance and bleaching; Marine Pollution; Climate change and Marine Ecosystem.

Unit – IV: Oceanic Resources

Classification of oceanic resources; Mineral resources; Energy resources; Food resources; Aquaculture and sericulture, Depletion of marine resources; Management, and conservation of marine resources; Indian marine and submarine explorations.



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GEOGRAPHY

SEMESTER – III

SECOND PAPER

Agricultural Geography (Core – Human)

UNIT I

Meaning, scope, & Development of Agricultural Geography; Approaches of study – commodity, systematic, regional and systems; Origin and dispersal of agriculture – major agricultural hearths; Diffusion of agricultural innovations..

UNIT II

Determinants of agriculture- physical, economic, political, technological, socio-cultural; land reforms, land use survey; Selected agricultural concepts and their measurements – cropping pattern, crop concentration, cropping intensity, degree of commercialisation, diversification and specialization, efficiency and productivity; crop combination regions;

UNIT III

Theories of agricultural location: Von Thunen's model and its modification – Sinclair's approach; Concept of agricultural region: Whittlesey's classification of agricultural regions; Agricultural typology Agro-climatic regions of India; Land use and land capability classification.

UNIT IV

Land use and shifting cropping pattern; new trends in Indian agriculture – Green revolution, white revolution; Food deficit and food surplus regions; Nutritional index; Problems & Policies of Indian agriculture; Agriculture and environmental degradation.



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GEOGRAPHY

SEMESTER – III

THIRD PAPER

Industrial Geography (Core – Systematic)

UNIT I

Nature, scope and recent developments in industrial geography; Factors of industrial location; Centralization and decentralization of industries; Horizontal, vertical and diagonal linkages of modern industries.

UNIT II

Theories and models of industrial location: Weber, Losch, Isard and Hoover; Distribution and spatial pattern of major industries Major industrial regions of the world.

UNIT III

Historical review of Indian industrialisation since 1947; Evolution of industrial regions in India; Development of small scale and cottage industries; Multinational corporations and India's industrial scenario; Industrial policy of India.

UNIT IV

Problems of industrial development; Industrial development and environmental degradation; Industries and economic development; Impact of globalisation on industrial development; Industrial decentralization and its impact on urban fringe; Changing industrial policy.



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GEOGRAPHY

SEMESTER – III

FOURTH PAPER

Africa (Elective 'E1')

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of Egypt, Sudan and South Africa



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SEMESTER – III

FOURTH PAPER

Australia (Elective ‘E2’)

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of important Australian States



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DEPARTMENT OF GEOGRAPHY

M. A.
GEOGRAPHY
SEMESTER – III
FIFTH PAPER

SECTION – A: LABORATORY WORK

UNIT – I: Cartography:

1. Earth and its coordinate System: Mathematical construction and characteristics of Sinusoidal, Gall's, Marcator's Projections.
2. Map Reference Systems

UNIT – II: Spatial Statistical Techniques:

1. Analysis of Spatial Data: Scatter diagram, correlation by Spearman's Rank order and Karl Pearson's Product Moment Methods, regression residuals.
2. Sources and Distribution of Data: Probability distribution; Sampling – Sampling frame and procedure, Spatial sampling design standard error and sample size.

UNIT – III: Digital Satellite Image & Digital Data Analysis:

1. Digital Image Rectification: Definition, Types of errors in satellite images: Scan line dropouts, scan line banding, scan line offsets, atmospheric corrections, geometric corrections – systematic, non-systematic.
2. Digital Image Enhancement: Spatial Digital Data Filtering – Concepts of use of Filters, Types of filters and their uses; Standardization of Digital Data Matrix, Correlation of Digital Data Matrix.

SECTION – B: FIELD WORK

1. Surveying: Planimetric and Altimetric details:
 - A. Countring by Indian Clinometer & Johnsons Plane Table
 - B. Surveying by Theodolite and Chain – Tape



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SEMESTER – IV

FIRST PAPER

Environmental Geography (Core – Physical)

UNIT I

Meaning and Scope of environmental geography; Basic principles of environmental geography; Composition and types of environment; Ecological principles; Man – environment relationship.

UNIT II

Ecosystem: concept and components; Trophic levels; Food chains and food webs; Energy flow in the ecosystem; Circulation of matter in the ecosystem, geobiochemical cycle, ecosystem productivity, ecosystem stability.

UNIT III

Environmental degradation; Extreme events, hazards and disasters (earthquake, volcanoes, cyclones, floods); Environmental pollution (air, water, solid waste, soil and noise pollution); Environmental pollution in India; Environmental Problems – global warming, ozone depletion, land degradation, reduction in biodiversity.

UNIT IV

Environmental management: concept and approaches; Environmental dimension in planning – sustainable development; Environmental consciousness, Environmental policy; environmental legislation; Environmental impact assessment; Disaster management.



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SEMESTER – IV

SECOND PAPER

Political Geography (Core – Human)

UNIT I

Meaning, scope, approaches of study & Development of Political Geography; Major schools of thought; Concept of state and nation; Spatial factors of state; Buffer state, core area, ecumene, capital city, frontiers and boundaries.

UNIT II

Concepts of geo-strategy; World geopolitics in changing perspectives- colonialism to federalism; Geostrategic ideas of Mahan, Mackinder, Spyman, Cohen and Seversky and their relevance in the modern world.

UNIT III

Geopolitical significance of the Indian Ocean; Role of third world countries; Political geography and regional co-operation; Geopolitical study of USA, SE Asia, S. W. Asia, S. Asia and Africa.

UNIT IV

Nature and scope of electoral geography; Geography of elections with special reference to India; Changing political map of India; Interstate issues; Insurgency in border states; Emergence of new states.



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SEMESTER – IV

THIRD PAPER

Urban & Regional Planning (Core – Systematic)

UNIT I

Concept of regional planning; Types of regional planning; City as unit of regional planning; Approaches to regional planning; Historical development of regional planning- -Developed and Developing world.

UNIT II

Methodology and techniques of regional planning; Analytical techniques and procedural techniques; Principles of rationalisation; Indicators of development and their data sources; Measures of regional development and regional disparities; Planning processes- Sectoral and spatial planning; short-term and long-term perspective planning; Multi regional and multilevel planning.

UNIT III

Regional development strategies: Export base theory, convergence theory, Growth poles and growth centres in regional development; Industrial dispersal and backward area development; Identification of planning regions; Regional planning strategies for backward areas-- drought prone area, hill area, tribal area and rural area.

UNIT IV

Role of Urban centres in Regional planning; Urban scenario in India; City regions and city problems; Problems of poorly urbanized areas; Strategies for urban planning; Metropolitan planning, preparation of master plans, city region planning.



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SEMESTER – IV

FOURTH PAPER

West Europe (Elective 'E1')

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of U. K., France and Germany



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SEMESTER – IV

FOURTH PAPER

East Europe (Elective 'E2')

UNIT I

Location, Physiographic Regions; Drainage Network; Climatic, Soil and Vegetative – Characteristics and Divisions.

UNIT II

Salient Economic Features; Agricultural, Mineral, Energy and Industrial Resources and spatial Pattern.

UNIT III

Salient Demographic Features; Demographic Growth, migration & spatial patterns; Ethnic composition and spatial patterns – language, religion and culture; Major Tribes – Distribution and Classification.

UNIT IV

Geographical study of Ukraine, Greece and European Russia



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SEMESTER – IV

FIFTH PAPER

SECTION – A: LABORATORY WORK

UNIT – I: Cartography:

1. Earth and its coordinate System: Mathematical construction and characteristics of Cylindrical equal area, Equi-Distant, Orthomorphic and Mollewide, Interrupted case of Sinusoidal Projections for continents and Oceans of world.
2. Analysis of Geological Map :drawing of sections.

UNIT – II: Spatial Statistical Techniques:

1. Hypothesis testing: Chi-square test, binomial test, t-test, Mann-Whitney U test, Analysis of variance; Gravity potential model; Trend surface analysis – simulation model, diffusion models.

UNIT – III: Digital Satellite Image & Digital Data Analysis:

1. Geographical Information System (GIS): Definition, components of GIS, forms of spatial data storage- node, arc, polygon; formats of spatial data – raster and vector; attribute data; database management systems – network, hierarchical and relational.
2. Image Classification Techniques: Basic principles and elements of principal component analysis;

SECTION – B: FIELD WORK

1. Project Work : Topic to be assigned by the supervisor.



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