Curriculum and Credit Framework
(Based on National Education Policy 2020)

for

Two Year Postgraduate Course in Geography

TO BE EFFECTIVE FROM THE ACADEMIC SESSION 2026 –27

and

One Year Postgraduate Course in Geography

TO BE EFFECTIVE FROM THE ACADEMIC SESSION 2027 –28

West Bengal State University

Berunanpukuria, Malikapur

Barasat, North 24 Parganas

West Bengal – 700126

Section 1: Two Year PG Structure for Geography.

Semester	Type of Course	Course Code		Marks	Credit
I	Core	GEO2PCOR01T	Advanced Geomorphology	50	4
	Core	GEO2PCOR02T	Applied Geomorphology and Climatology	50	4
	Core	GEO2PCOR03T	Geography of Population, Culture and Society	50	4
	Core	GEO2PCOR04T	Rural and Urban Geography	50	4
	Core	GEO2PCOR05P	Geostatistical Techniques	50	4
	AECC	GEO2PAEC01M	Communication Skills/ Traditional Knowledge in Nature Conservation Swayam/ Mooc course	50	2
II	Core	GEO2PCOR06T	Hydrology and Oceanography	50	4
	Core	GEO2PCOR07T	Climate Science and Climate Change	50	4
	Core	GEO2PCOR08T	Regional Development and Planning	50	4
	Core	GEO2PCOR09T	India: Resource Appraisal and Sustainability	50	4
	Core	GEO2PCOR10P	Research Methodology and Mapping Techniques.	50	4
III	Core	GEO2PCOR11T	Philosophies of Geography and Geopolitics	50	4
	Core	GEO2PCOR12T	Advanced Statistics and modelling in Geography	50	4
	Elective	GEO2PDSE01T	A. Fluvial Processes and Management	50	4
		GEO2PDSE01T	B. Rural Institutional Management and Development in India	50	4
		GEO2PDSE01T	C. Natural Systems in the Anthropocene	50	4
	Core	GEO2PCOR13P	Advanced Geoinformatics	50	4
	Core	GEO2PCOR14P	Ground Survey and Field Observations	50	4
	SEC	GEO2PSEC01M	Introduction to Computer Programming	50	4
IV	Core	GEO2PCOR15T	Environment, Soil and Plant Geography	50	4
	Elective	GEO2PDSE02T	A. Coastal Processes and Management	50	4
		GEO2PDSE02T	B. Rural Resource Economics and Development in India	50	4
		GEO2PDSE02T	C. Management of Physical and Human Environment	50	4
	Elective	GEO2PDSE03T	A. Geomorphic Processes and Environmental Management	50	4
		GEO2PDSE03T	B. Rural Culture, Heritage and Development	50	4
		GEO2PDSE03T	C. Environmental Impact Assessment and Environmental Legislation in India	50	4
	Elective	GEO2PDSE04P	A. Practical on Applied Geomorphology	50	4

		GEO2PDSE04P	B. Practical on Rural Development and Planning	50	4
		GEO2PDSE04P	C. Practical on Environment Management	50	4
	Elective	GEO2PDSE05M	A. Project Report/ Internship based on Applied geomorphology	50	4
		GEO2PDSE05M	B. Project Report/ Internship based on Rural Development and Planning	50	4
		GEO2PDSE05M	C. Project Report/ Internship based on Environment Management	50	4
	Elective	GEO2PDSE06M	A. Project Presentation/ Internship based on Applied geomorphology	50	4
		GEO2PDSE06M	B. Project Presentation/ Internship based on Rural Development and Planning	50	4
		GEO2PDSE06M	C. Project Presentation/ Internship based on Environment Management	50	4

Elective stream A: Applied Geomorphology

Elective stream B: Rural Development and Planning.

Elective stream C: Environment Management

(The number of specializations offered will depends on the student and faculty strength)

Section 2: One Year PG Structure for Geography

Semester	Type of Course	Course Code		Marks	Credit
III	Core	GEO1PCOR01T	Philosophies of Geography and Geopolitics	50	4
	Core	GEO1PCOR02T	Advanced Statistics and modelling in Geography	50	4
	Elective	GEO1PDSE01T	A. Fluvial Processes and Management	50	4
		GEO1PDSE01T	B. Rural Institutional Management and Development in India	50	4
		GEO1PDSE01T	C. Natural Systems in the Anthropocene	50	4
	Core	GEO1PCOR03P	Advanced Geoinformatics	50	4
	Core	GEO1PCOR04P	Ground Survey and Field Observations	50	4
	SEC	GEO1PSEC01M	Introduction to Computer Programming	50	4
IV	Core	GEO1PCOR05T	Environment, Soil and Plant Geography	50	4
	Elective	GEO1PDSE02T	A. Coastal Processes and Management	50	4
		GEO1PDSE02T	B. Rural Resource Economics and Development in India	50	4
		GEO1PDSE02T	C. Management of Physical and Human Environment	50	4
	Elective	GEO1PDSE03T	A. Geomorphic Processes and Environmental Management	50	4
		GEO1PDSE03T	B. Rural Culture, Heritage and Development	50	4
		GEO1PDSE03T	C. Environmental Impact Assessment and Environmental Legislation in India	50	4
	Elective	GEO1PDSE04P	A. Practical on Applied Geomorphology	50	4
		GEO1PDSE04P	B. Practical on Rural Development and Planning	50	4
		GEO1PDSE04P	C. Practical on Environment Management	50	4
	Elective	GEO1PDSE05M	A. Project Report/ Internship based on Applied geomorphology	50	4
		GEO1PDSE05M	B. Project Report/ Internship based on Rural Development and Planning	50	4
		GEO1PDSE05M	C. Project Report/ Internship based on Environment Management	50	4
	Elective	GEO1PDSE06M	A. Project Presentation/ Internship based on Applied geomorphology	50	4
		GEO1PDSE06M	B. Project Presentation/ Internship based on Rural Development and Planning	50	4
		GEO1PDSE06M	C. Project Presentation/ Internship based on Environment Management	50	4

Elective stream A: Applied Geomorphology

Elective stream B: Rural Development and Planning.

Elective stream C: Environment Management

(The number of specializations offered will depend on the student and faculty strength)

Semester – I

GEO2PCOR01T: ADVANCED GEOMORPHOLOGY (4 CREDIT)

Unit1: Tectonic Geomorphology

1.1 Major Tectonic events over geological time. Relative and absolute motion of plates: driving forces, triple junctions and their surface expressions.

1.2 Geological and tectonic history of Bengal Basin with special reference to Hinge Zone and the Tri-junction of Burma Plate

1.3 Structure and form of orogenic belts with reference to the Himalayas: Fore deep basins, thrust belt, metamorphism and tectonics.

1.4 Neotectonics: geomorphic markers, rates of uplift and erosion, principles of relative and absolute dating.

Unit 2: Foundation and Branches of Geomorphology

2.1 Principle of Uniformitarianism, Catastrophism, inheritance from the past; Systems Approach; feedback, equilibrium and threshold, Ergodicity and Hysteresis.

2.2 Climatic geomorphology: Morphogenetic regions and their importance, Significance of process studies in geomorphology

2.3 Anthropogenic geomorphology — Concept of the Anthropocene, evolution and geomorphic impact of man-made landforms.

2.4 Planetary geomorphology: Approaches and methods with special reference to Mars and Moon.

Unit 3: Fluvial Processes and Form

3.1 Channel initiation and network development

3.2 Hydraulics of streamflow: Hydraulic geometry —- downstream and at-a-station change with discharge, types of flow, stream velocity and resistance, factors regulating entrainment, transportation and deposition of dissolved, suspended and bed load.

3.3 Process and form associated with Rejuvenation. Fluvial erosional forms in bedrock channels

3.4 Fluvial depositional forms: Alluvial fans and river terraces

Unit 4: Geomorphic Processes and Resultant Landforms

4.1 Slope evolution models — King, Wood and Young.

4.2 Coastal morphodynamic variables and their influence on evolution of coastal forms. Morphodynamic classification of coast.

4.3 Karst processes and landforms in Tropical Humid Environments

4.4 Periglacial processes and evolution of periglacial landforms

GEO2PCOR02T: APPLIED GEOMORPHOLOGY AND CLIMATOLOGY (4 CREDIT)

Unit 1: Geomorphology in Assessment of Hazards and Engineering Projects

1.1 Principles, aspects and purpose of applied geomorphology.

1.2 Geomorphic approach to hazard assessment and management: Mechanisms, vulnerability and management of landslides, floods, riverbank erosion and GLOF

1.3 Geomorphology in site feasibility assessment of engineering projects: Construction of roads, dams, tunnels, and bridges.

1.4 Geomorphic issues associated with channel restoration and dam removal

Unit 2: Geomorphology of Land Utilization and Resource Management

2.1 Managing flash floods, urban drainage, and badland reclamation

2.2 Principles of terrain evaluation and its significance. Application of remote sensing and GIS techniques in terrain evaluation

2.3 Geomorphology in mineral prospecting and groundwater mapping

2.4 Geomorphology in watershed management

Unit 3: Climate and the Bio-Physical Environments

3.1 Foundation of Applied Climatology: History of applied meteorology; climate as a resource; data sources, ancient and indigenous knowledge of climate prediction

3.2 Bioclimatology and health: Human thermal comfort indices (PET, UTCI); climate-sensitive diseases (vector-borne epidemics)

3.3 Agroclimatology: Crop-weather relationships, Growing Degree Days (GDD), drought classification (meteorological, hydrological, agricultural), drought monitoring through Standardised Precipitation Index (SPI)

3.4 Climatology in aviation and marine navigation

Unit 4: The Changing Climatic Environments

4.1 Urban Heat Island: Mechanics of the Urban Heat Island (UHI) effect, urban microclimates, climate-responsive building design and wind ventilation corridors.

4.2 Climatology in pollution studies

4.3 Climatology in hazard identification and risk reduction: Cyclones and drought

4.4 Approaches and techniques of weather forecasting in India; short, medium and long range.

GEO2PCOR03T: GEOGRAPHY OF POPULATION, CULTURE AND SOCIETY

(4 Credit)

Unit 1: Emerging Issues in Population Geography

1.1 Population-development conflict: Concepts of rich and poor worlds and their global perspectives; Neo-Malthusian theory; future perspectives in growth scenario, demographic dividend.

1.2 Challenges for developed and developing countries with respect to demographic characteristics, reproduction, health and education

1.3 Population and vulnerability: Identity crisis in relation to Diaspora, ageing and displacement, food security and hunger

1.4 Population explosion and poverty: Causes, effects, and measures of control, National Population Policy

Unit 2: Elements of Indian Society

2.1 Perspective of caste system (M.K. Gandhi, B.R. Ambedkar and M.N Srinivas),

2.2 Caste and social stratification; caste movement and national integration, disadvantaged communities and social justice

2.3 Tribal communities: definitional problems, distinctive features and concentration, tribal problems and effects of detribalization, mainstreaming of PVTGs; issues and challenges.

2.4 Indian Society and its multicultural identity

Unit3: Social-Cultural Relations

3.1 Cultural Geography: Evolution, approaches; nature and content. Key concepts of culture: Material and non-material culture; cultural diversity and cultural landscape; cultural diffusion

3.2 Social Behaviour, Structure and process

3.3 Origin of culture: Cultural hearth and cultural realm, cultural region

3.4 Cultural processes: Cultural assimilation, integration and acculturation; cultural segregation and cultural regeneration and Sanskritization.

Unit 4: Issues of Social Change in India

4.1 Social change: Evolving scenario of caste-class divides and rural-urban divides; Process of transformation and rise of middle class

4.2 Social problems: social exclusion, poverty, migration; crime and human trafficking, gender discrimination

4.3 Demographic implications of changes in gender roles, families and household

4.4 Digital society: evolution , global village , global city, digital divide; impact of ICT on human culture and society

GEO2PCOR04T: RURAL AND URBAN GEOGRAPHY (4 Credit)

Unit 1: Rural Development and Geographical Perspective

1.1 Paradigms of rural development: Modernisation paradigm, holistic development paradigm, Gandhian approach. Rural-urban continuum, restructuring of rural spaces in a globalised world.

1.2 Rural settlement: Genesis, spatial distribution patterns and types of rural dwellings. Rural service centres. Hierarchy of nodal settlement of market centres and growth centres.

1.3 Approaches to rural development: Area-based (DPAP) and Target based (NFFWP)

1.4 Rural Employment policies and programmes in India, PMGSY, SJSY, MNREGA, Jan Dhan Yojana

Unit 2: Rural Economy, Social Dynamics and Rural Governance

2.1 Agrarian Restructuring: Green Revolution impacts, commercialisation of agriculture, and contract farming.

2.2 The Non-Farm Sector: Emerging industry and trade in rural areas with special reference to Rural Service Centre. Rural diversification, periodic markets, rural tourism, and rural-urban migration.

2.3 Social Stratification: Intersection of caste, class, and gender in spatial access; rural poverty, food security, and marginalisation.

2.4 73rd Constitutional Amendment of India and its implications for governance, Participatory rural planning and management with reference to JFM, Watershed Management, SHGs, MGNREGA, Rural Health Mission.

Unit 3: Urbanisation and Urban Systems

3.1 Urban Geography: approaches and recent trends. Concepts of urban, urbanism and urbanisation

3.2 Global Urbanization Trends: Megacities, hyper-urbanization, counter-urbanization, and the production of urban space. Law of the Primate City.

3.3 Types and characteristics of urban areas: Megalopolis, Satellite Towns, Metropolitan Areas and Urban Agglomerations

3.4 Policies of urban development at the national level and its implications National Commission on Urbanization(NCU), Integrated Development of Small and Medium Towns (IDSMT), Jawaharlal Nehru National Urban Renewal Mission (JNNURM); Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Unit 4: Urban Vulnerabilities, Infrastructure and Urban Governance

4.1 Critical Infrastructure: Water scarcity, transit-oriented development (TOD), smart city infrastructures, and digital divide

4.2 Solid waste management and ecological consequences, MSWM Rules 2016

4.3 Housing: Proliferation of slums, gentrification, eviction. Informal settlement and housing; Affordable Housing schemes in India

4.4 Urban transport problems and policies

GEO2PCOR05P: GEOSTATISTICAL TECHNIQUES (4 CREDIT)

Unit1: Geographical Data, Sampling and Descriptive Statistics

1.1 Types of statistics: Descriptive and Inferential. Meaning and description. Geographical data: Spatial and temporal data, discrete and continuous data, grouped and ungrouped data nominal, ordinal, interval and ratio scales of measurements, frequency distribution.

1.2 Measures of central tendencies: Mean, median, mode. Probability: normal, poisson and binomial, normal probability curve and its application

1.3 Measures of dispersion: Variance, coefficient of variability, standard deviation, skewness and kurtosis.

Unit 2: Theory of Probability

2.1 Probability: Empirical definition, axioms, probabilities of compound events.

2.2 Determination of the probability of a continuous random event using normal distribution. Properties of normal distribution

2.3 Determination of the probability of a discrete random event using Binomial and Poisson distributions. Properties of Binomial and Poisson distribution.

Unit 3: Sampling and Hypothesis Testing

3.1 Sampling theories and methods; application of random numbers, sampling error and its estimation.

3.2 Hypothesis testing: formulation, acceptance and rejection, significance level and type of errors.

3.3 Test of significance: Students t Test (Parametric test) and Chi Square Test (Non-parametric test).

Unit 4: Bivariate Analysis: Correlation and Regression

4.1 Concept of bivariate correlation and regression; bi-variate analysis and curve fitting — linear, exponential. power relationship.

4.2 Calculation of Pearson's product moment correlation coefficient and rank correlation, residuals and mapping of residuals.

4.3 Time-series analysis: Properties, trends and periodicity. Curve fitting by moving average and least square method.

Students should be able to use excel or any other available programme wherever possible.

Semester – II

GEO2PCOR06T: HYDROLOGY AND OCEANOGRAPHY (4 CREDIT)

Unit1: Components of Hydrology

1.1 Hydrological system models and their classification; principles of hydrologic budget calculation; hydrological measurements and data sources

1.2 Water inputs: Water vapour; precipitation and its variability, Intensity-Duration-Frequency (IDF) relationships.

1.3 Water storages: Interception, throughfall and depression storage — controlling factors and estimation.

1.4 Water losses: Evaporation, transpiration and evapotranspiration — controlling factors and estimation.

Unit 2: Surface and Groundwater Hydrology and Related Applications

2.1 Catchment processes: Generation of direct runoff, streamflow and baseflow.

2.2 Vertical distribution of water: zone of aeration and saturation. Water-bearing properties of rocks, groundwater flow — Darcy's law.

2.3 Water harvesting: models, techniques and feasibility

2.4 Water management in tropical farmlands: techniques and approaches.

Unit 3: Morphology of Ocean Basins

3.1 Wilson cycle— opening and closure of ocean basin, Characteristics of continental margins, ridges, guyots, trenches, canyons, fracture zones, island arcs and their tectonic settings.

3.2 Marine sediments: Classification, origin, composition and distribution.

3.3 Morphology and evolution of coral islands, conditions for coral growth, distribution of coral reefs; problem of coral bleaching.

3.4 Evolution and bottom topography of Indian ocean: with respect to submarine ridges, islands continental shelf, trenches, straits and marginal seas.

Unit 4: Ocean Circulation and Marine Resources

4.1 Atmosphere-Ocean-Climate coupling: Feedback mechanisms, ocean mixed layer dynamics, fluxes in the boundary layer, gas exchange, ENSO and its impact.

4.2 Ocean circulation: Sea surface currents, deep ocean circulation; generation of wind-waves and tide

4.3 Sea level change: Types and causes

4.4 Utilisation of the oceanic resources: Nature and types, Regulatory measures like EEZ and CRZ.

GE2OPCOR07T: CLIMATE SCIENCE AND CLIMATE CHANGE (4 CREDIT)

Unit1: Atmospheric Dynamics

1.1 The climate system; the concept of micro, meso and macro-climate.

1.2 Atmospheric temperature; equations for state of ideal gases; First and Second Laws of Thermodynamics.

1.3 Atmospheric moisture; process of condensation and precipitation; Carnot Cycle and Clausius-Clapeyron equation, conditions of stability and instability.

1.4 Concepts and equations of pressure, gravity, centripetal and Coriolis forces; geostrophic and gradient winds; divergence and vertical motion and vorticity

Unit 2: The Climate Change Phenomenon

2.1 Earth's climate system: Solar radiation budget, greenhouse effect and atmospheric feedback loops.

2.2 Theories of climate change, methods to reconstruct the past climate: Dendrochronology, pollen grain analysis, isotope analysis of ice core and ocean floor sediment analysis.

2.3 Anthropogenic drivers and biogeochemical cycles: Carbon, nitrogen, and methane cycles; quantifying post-industrial greenhouse gas emissions.

2.4 Past, present, and future scenarios, future strategies, and adaptations. IPCC Reports and different climate change models

Unit–3: to Climate Change Vulnerability and Regional Impacts

3.1 Extreme whether events: Intensifying droughts, floods, heatwaves and tropical cyclones

3.2 Impacts on ecosystem: Ocean acidification, permafrost thaw and forest dieback thresholds.

3.3 Human vulnerability: Climate impacts on agricultural yields, global water scarcity, and climate-induced migration.

3.4 Temperature and precipitation changes in India, droughts and floods, extreme storms and sea level rise, Indian Ocean warming, climate change over Himalayas

Unit 4: Climate Policy, Governance and Mitigation Measures

4.1 International climate governance: Critical analysis from the UNFCCC and Kyoto Protocol to the Paris Agreement and subsequent COP sessions.

4.2 Renewable energy systems: Scaling solar, wind, green hydrogen, and advanced energy storage technologies, Shared Socioeconomic Pathways (SSPs)

4.3 Carbon pricing: Social cost of carbon, carbon taxes, evaluating bioenergy with carbon capture and storage. Methane Strategy: Addressing short-lived climate pollutants in agriculture, wastewater and fossil fuel extraction

4.4 Climatic adaptation: Climate smart agriculture

GEO2PCOR08T: REGIONAL DEVELOPMENT AND PLANNING (4 CREDIT)

Unit1: Regional Development

1.1 Regions: Concept, types, and delineation

1.2 Concepts of growth and development. Indicators of development: Economic,demographic, and environmental

1.3 Theories and models for regional development: Harrod Domar Growth Model; Coastal Penetration Model, Kuznets Growth Model, SOLOV model, Paul Krugeman Model of Economic Growth.

1.4 Underdevelopment: Concept and causes

Unit 2: Regional Disparities and Development in India

2.1 Regional disparities in India: Economic and social, Identification of backward areas and policy issues

2.2 Regional Policies: Five Year Plans, NITI Aayog's strategies and Rurban Mission

2.3 Special Economic Zones - special reference to West Bengal

2.4 Regional planning in India: DVC, National Capital Region, Kolkata and Tribal Area Development

Unit–3: Regional Planning Concept and Principles

3.1 Regional planning: Principles, objectives and approaches

3.2 Types of planning: Temporal, sectoral, spatial, and non-spatial. Centralized and decentralized planning. Multi-level planning

3.3 Planning strategies: Top -Down and Bottom-up approach; Participatory planning and governance

3.4 Regional planning models: Growth Foci, Service Centre Approach, Rural-Urban Integration.

Unit 4: Regional Planning in India

4.1 Planning issues in hill area (as formal region) and city region (as functional region)

4.2 Regional disparities: Concept, types; demographic, social and economic disparities in India.

4.3 Planning of problem regions: Tribal, coastal, drought prone area, flood prone area

4.4 Pandemics and city planning

GEO2PCOR09T: INDIA: RESOURCE APPRAISAL AND SUSTAINABILITY (4 CREDIT)

Unit1: Natural resource appraisal and management

1.1 Water resource management: Potential and uses, big dams, river linkage, utilisation of ground water.

1.2 Biotic resource management: Biodiversity conservation and participatory forest management, social forestry.

1.3 Land resource management. Wastelands, reclamation of saline, alkaline and acidic soils

1.4 Identification and conservation of Geomorphosites, promotion of ecotourism

Unit 2: Human Resources

2.1 Quality and composition of population**: S**ex ratio, literacy rate, life expectancy

2.2 Constitutional directives in improving population quality; disparity in Human Development

2.3 Rural labour force with special reference to gender, migration and socio-cultural dimensions

2.4 Urban Population in India: problems and policies; rural-urban linkage.

Unit–3: Economic Resources

3.1 Industrial regions of India; Industrial complexes

3.2 Industrial development in India, impact of new industries and globalisation on industrial sector

3.3 Role of technological changes in agricultural productivity in India, impact of Green, White and Blue Revolution.

3.4 Food security scenario in India

Unit 4: India's role in Trade and Transport

4.1 Economics of global trade: Balance of payment. Role of World Bank, regional blocks in international trade: ASEAN

4.2 Significance of trade in national and international economy: G8 countries, TRIPS and MNC's

4.3 Contemporary structure of regional economy: Market-centres and their orders; Export Processing Zone (EPZ). Information technology and its impact on trade.

4.4 Transport networks and their role in national and international trade.

GEO2PCOR10P: RESEARCH METHODOLOGY AND MAPPING TECHNIQUES (4 CREDIT)

Unit1: Methodology of Geographical Research

1.1 Research in geography: Types, selection of research problem, selection of study area

1.2 Literature review and identification of research gap, formulation of research design, objectives and hypothesis

1.3 Techniques of writing scientific reports: Preparing notes, references, bibliography,abstract, keywords, and sectioning

1.4 Research ethics with special reference to plagiarism

Unit 2: Mapping Spatial Pattern and Inequality

2.1 Location of mean centre and standard distance measure.

2.2 Population projection using exponential curve and Breaking point analysis

2.3 Location Quotient, Functional classification of urban places by Ternary diagram.

2.4 Lorenz Curve and Gini Coefficient for measuring inequality.

Unit–3: Representation of Hydrological and Climatic Data

3.1 Calculating flood recurrence interval of a river, preparation of rating curve and unit hydrograph of a river

3.2 Measuring riverbank shifts from multi-temporal maps/ images in GIS environment

3.3 Preparation of Station Model and interpretation of synoptic chart

3.4 Computation of Human Discomfort Index as per E.C. Thom (1959) due to high temperature and humidity

Unit 4: Field and Laboratory Techniques

4.1 Field methods in human geography: Perception Survey Techniques, preparation of Survey Schedule and Questionnaires for perception survey (open, closed, structured, non-structured), Likert Scale in perception surveys, Interviews, analysis of text, narrative analysis, statement analysis. Focussed group discussion —principles and techniques.

4.2 Field methods in physical geography: Instrument-based survey, soil sample collection, preparing soil samples for textural analysis, ground truth verification.

4.3 Assessment of soil status by soil testing kit: N, P, K, organic carbon and pH

4.4 Determination of water quality: Alkalinity, CO_2, DO and Nitrate

Section 4: Aptitude Enhancement Course

GEO2PAEC01M-A: COMMUNICATION SKILLS (2 CREDIT)

Unit1 Non-verbal and Oral Communication

1.1 Importance and purpose of communication, process of communication, types and techniques communication, barriers to communication

1.2 Non-verbal communication: body language, tips for improving non-verbal communication

1.3 Academic listening: listening to lectures and presentations, tips for taking down points

1.4 Reading skills: purpose, process, methodologies, academic reading tips

1.5 Speaking skills: pronunciation, communication protocols, expressing opinions and command over language, self confidence

Unit 2: Writing Capability and Communication Skill for Career Building

2.1 Elements of effective writing, the sentence, phrases and clauses, types of sentences

2.2 Main forms of written communication: Summarising and elaboration, as per requirement

2.3 Remedial English grammar and usage: Articles, tenses, prepositions, correction of errors in a given sentence, errors in the use of words, errors in punctuation, preparing a CV

2.4 Presentation skills: Preparing a PowerPoint presentation, presenting a paper, group discussions, preparing for and facing a job interview

2.5 Time and stress management: Identifying time wasting elements, time management tips, identifying factors responsible for stress, stress management tips.

GEO2PAEC01M-B: TRADITIONAL KNOWLEDGE IN NATURE CONSERVATION (2 CREDIT)

Unit1 Biodiversity Conservation and Sacred Spaces [1, 2]

1.1 Sacred Groves: Traditional protection of forest patches, religious taboos, ecological security, and case studies of indigenous conservation

1.2 Ethno-botany and Medicinal Plants: Traditional classification of plants, threats, and preservation strategies.

1.3 Sacred Rivers and Mountains: The cultural geography of assigning sanctity to water bodies and peaks as a mechanism for preservation.

1.4 Sacred Rivers and Mountains: The cultural geography of assigning sanctity to water bodies and peaks as a mechanism for preservation.

Unit 2: Traditional Water Management and Agriculture

2.1 Indigenous Water Harvesting: Structural frameworks of ancient Indian water architecture—stepwells, tanks, canals, and water harvesting.

2.2 Sustainable Farming: Soil classification, organic treatments, crop rotation, and the usage of natural fertilizers

2.3 Community-Led Conservation: The role of community governance in sharing water resources and protecting shared pasture lands

2.4 Integrating Indian Knowledge with Modern Geospatial Tools for landscape analysis, to assess biodiversity hotspots, ecological corridors, and sustainable development planning.

(Department will offer any one course GEO2PAEC01M-A or GEO2PAEC01M-B depending on the students' demand and faculty strength)

Section 5: Reference List

GEO2PCOR01T: Advanced Geomorphology

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- Brown, A.G. (1997): Alluvial Geoarchaeology: Floodplain Archaeology and Environment Change, Cambridge University Press, Cambridge.
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- Coch, N.K. (1994): Geohazards: Natural and Human, Prentice-Hall, Englewood Cliffs.
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- Cooke, R.U., Warren, A. and Goudie. A.S. (1993): Desert Geomorphology, CRC Press, London.
- Cox, A. and Hart, R.B. (1986): Plate Tectonics: How it Works, Blackwell Scientific Publications, Oxford.
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- Summerfield, M.A. (Editor) (1991): Global Geomorphology: An Introduction to the Study of Landforms, John Wiley and Sons Ltd., New York.
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- Mitshell, C.W. (1973) Terrain evaluation; an introductory handbook to the history, principles, and methods of practical terrain assessment, Longman publishing, London.

GEO2PCOR02T: Applied Geomorphology and Climatology

- Selby, M.J. 1985. An Introduction to Geomorphology, Clarendon, Oxford.
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