Gokhale Memorial Girls' College

Department of Geography

Academic Calendar 2018-19

Sem I Hons. (July 2018 to December 2018)

Sl no.	Paper/Module	Topic	No. of lectures	Faculty
1.	GEO-A-CC-1-01-TH – Geotectonics and Geomorphology 60 Marks / 4 Credits	Unit I: Geotectonics 1. Earth's tectonic and structural evolution with reference to geological time scale	03	K.R
		2. Earth's interior with special reference to seismology. Isostasy: Models of Airy, Pratt, and their applicability	03	K.R
		3. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots	10	K.R
		4. Folds and Faults—origin and types.	04	Z.H
		Unit II: Geomorphology 5. Degradational processes: Weathering, mass wasting, and resultant landforms	05	K.R
		6. Processes of entrainment, transportation, and deposition by different geomorphic agents. Role of humans in landform development	04	Z.H
		7. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults	07	Z.H
		8. Development of river network and landforms on granites, basalts and limestones	04	Z.H

		9. Coastal processes and landforms 10. Glacial and glacio-fluvial processes and landforms 11. Aeolian and fluvio-aeolian processes and landforms 12. Role of time in geomorphology: Schumm and Lichty's model. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach	04 04 04 08	K.R K.R Z.H Z.H
	GEO-A-CC-1-01-P – Geotectonics and Geomorphology Lab 30 Marks / 2 Credits	1. Measurement of dip and strike using clinometer 2. Megascopic identification of (a) mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble 3. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite). Delineation of drainage basins. Construction of relative relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5') 4. Construction of hypsometric curve and	06 14 35	P.D.G K.D Z.H, K.R & I.S

		derivation of hypsometric integer of a drainage basin (c. 5’ x 5’) from Survey of India 1:50k topographical maps of plateau region	05	I.S
2.	GEO-A-CC-1-02-TH – Cartographic Techniques 60 Marks / 4 Credits	1. Maps: Components and classification 2. Concept and application of scales: Plain, comparative, diagonal and Vernier 3. Coordinate systems: Polar and rectangular 4. Concept of generating globe 5. Grids: Angular and linear systems of measurement 6. Bearing: Magnetic and true, whole-circle and reduced 7. Concept of geoid and spheroid with special reference to Everest and WGS-84 8. Map projections: Classification, properties and uses 9. Concept and significance of UTM projection 10. Representation of data using dots, spheres and divided proportional circles 11. Representation of data using isopleth, choropleth, and chorochromatic maps 12. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps	04 08 06 02 05 05 04 08 02 05 05 06	I.S K.R K.D K.D K.D K.D K.D P.D.G K.D I.S Z.H K.R
	GEO-A-CC-1-02-P – Cartographic Techniques Lab 30 Marks / 2 Credits	1. Graphical construction of scales: Plain, comparative, diagonal and Vernier 2. Construction of projections: Polar Zenithal	16	K.R KD/P.D.G

		Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's 3. Thematic maps: Proportional squares, pie diagrams with proportional circles, dots and spheres 4. Thematic maps: Choropleth, isopleth, and chorochromatic maps	20 12 12	 I.S K.R & Z.H

Sem 2 Hons. (January, 2019 to June 2019)

Sl. No.	**Paper/Module**	**Topic**	**No. of lectures**	**Faculty**
1.	GEO-A-CC-2-03-TH – Human Geography 60 Marks / 4 Credits	Unit I: Nature and Principles 1. Nature, scope and recent trends. Elements of human geography 2. Approaches to Human Geography: Resource, locational, landscape, environment 3. Concept and classification of race. Ethnicity 4. Space, society, and cultural regions (language and religion) Unit II: Society, Demography and Ekistics 5. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, and industrial society 6. Human adaptation to environment: Case studies of Eskimo, Masai and Maori 7. Population growth and distribution, composition; demographic transition	 04 06 05 05 06 04 05 05 05	 K.R K.R I.S I.S K.D M.D K.R K.R M.D

		8. Population–resource regions (Ackerman) 9. Development–environment conflict 10. Types and patterns of rural settlements 11. Rural house types in India 12. Morphology and hierarchy of urban settlements	05 05 05	Z.H Z.H Z.H
	GEO-A-CC-2-03-P – Human Geography Lab 30 Marks / 2 Credits	1. Spatial variation in continent- or country-level religious composition by divided proportional circles 2. Measuring arithmetic growth rate of population comparing two decadal datasets [3. Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis 4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5’ x 5’)	12 15 20 13	I.S M.D K.R I.S
2.	GEO-A-CC-2-04-TH – Thematic Mapping and Surveying 60 Marks / 4 Credits	1. Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales 2. Concept of diagrammatic representation of data 3. Preparation and interpretation of geological maps 4. Preparation and interpretation of weather maps 5. Preparation and interpretation land use land cover maps 6. Preparation and interpretation of socio-economic maps	04 02 05 05 05 05	M.D I.S Z.H K.R M.D I.S

		7. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan 8. Basic concepts of surveying and survey equipment: Prismatic compass 9. Basic concepts of surveying and survey equipment: Dumpy level 10. Basic concepts of surveying and survey equipment: Theodolite 11. Basic concepts of surveying and survey equipment: Abney level 12. Basic concepts of surveying and survey equipment: Laser distance measurer	05 05 07 07 05 05	M.D K.D K.D K.D M.D M.D
	GEO-A-CC-2-04-P – Thematic Mapping and Surveying Lab 30 Marks / 2 Credits	1. Traverse survey using prismatic compass 2. Profile survey using dumpy Level 3. Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite 4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions	10 12 18 20	K.D K.D K.D Z.H & K.R

Part II Hons.

Sl no.	**Paper/Module**	**Topic**	**No. of lecture**	**Faculty**
1.	Paper III Module 5 Climatology (Th.) 50 Marks	<u>Unit I: Atmospheric Layers and Thermal Variation</u> 1.1 Nature, composition and layered structure of the atmosphere	02	K.R

		1.2 Factors controlling insolation ; heat budget of the atmosphere	03	
		1.3 Horizontal and vertical distribution of temperature; Inversion of temperature	02	
		1.4 Green house effect and importance of ozone layer	04	
		Unit II: Atmospheric Layers and Wind Circulation		P.D.G
		2.1 Global atmospheric pressure belts and their oscillation	02	
		2.2 General wind circulation	03	
		2.3Jet stream and index cycle	04	
		2.4Monsoon mechanism with reference to jet stream	04	
		Unit III: Precipitation and Air mass		P.D.G
		3.1 Processes and forms of condensation	02	
		3.2 Mechanism and forms of precipitation- Ice Crystal theory, Collision-coalescence Theory	04	
		3.3 Airmass: typology, origin and characteristics	03	
		3.4 Warm and cold fronts; frontogenesis and frontolysis	04	
		Unit IV: Weather Disturbance and Climatic Classification	03	K.R

		4.1 Tropical cyclone 4.2 Mid-latitude cyclone and anti-cyclone 4.3 Climatic classification after Koppen 4.4 Climatic Classification after Thornthwaite: 1931 and 1948	03 03 04	
2.	Paper III Module 6 Soil and Bio-Geography (Th.) 50Marks	<u>Unit I : Soil Formation, Profile Characteristics and Properties</u> 1.1 Definition and factors responsible for soil formation 1.2 Concept of V.V. Dokuchaev- ektodynamomorphic and endodynamomorphic soils; Concept of N.M.Sibirtzev- Zonal, Azonal and Intra zonal soils 1.3 Profile characteristics of Pedalfer group :Laterite and Podzol; Profile characteristics of Pedocal group: Chernozem 1.4 Physical properties of soil: Texture, Structure and Moisture; Chemical properties of soil: pH, Organic matter and NPK <u>Unit II: Soil and Land Management</u> 2.1 Soil erosion: Processes and controlling factors	02 03 06 03 02 03	I.S I.S

		2.2 Various measures of soil conservation 2.3 Principles of soil classification: Genetic School and USDA Principles of land classification: UK and USDA 2.4Land capability classification by Storie <u>Unit III: Concepts in Bio -Geography</u> 3.1 Scope and content of Bio Geography; Nature of Biosphere 3.2 Concepts of Ecology, Ecosystem and major natural ecosystems: terrestrial and marine; Trophic structure, Food chain and Food web 3.3 Laws of Thermodynamics 3.4 Energy flow in ecosystems <u>Unit IV: Ecological Aspects of Bio - Geography</u> 4.1 Bio-geo-chemical cycle 4.2 Concept of Biomes, Ecotone, and Community; study of Tropical rain forest, Taiga and Grasslands 4.3 Deforestation: Causes and consequences 4.4 Significance of Biodiversity and controlling factors	06 01 02 04 02 03 04 05 02 02	K.R K.R
3.	Paper IV Module 7	<u>Unit I: Concept in Social Geography</u>		

	Social, Cultural and Political Geography (Th.) 50 Marks	1.1 Definition, scope and content of Social Geography 1.2 Evolution of Social Geography: Approaches- Possibilistic, Behavioral, Radical and Welfare 1.3 Social structure and Social processes: macro and micro; Social patterns 1.4 Concept of Space: Social space, Material space; Social wellbeing <u>Unit II:Components of Social Geography</u> 2.1 Region as a social unit 2.2 Social Elements; Class, caste and ethnicity with special reference to India 2.3 Social issues in urban areas: Social area analysis; Social ecology 2.4 Social Groups: Tribal, Traditional and Modern society <u>Unit III: Cultural Geography</u> <u>3.1</u> Concept of culture in Geography; definition, scope and content of Cultural Geography 3.2 Cultural groups with reference to India: ethnic, linguistic and religious 3.3 Cultural regions, Cultural areas and Cultural landscape	02 03 03 04 02 03 04 04 02 03 03 03 01	Z.H Z.H Z.H

		3.4 Cultural assimilation, integration and diffusion <u>Unit IV: Political Geography</u> 4.1 Definition and scope of Political Geography 4.2 Approaches and Schools of thought in Political Geography (Landscape school, Functional school and Morphological school 4.3 Geo- strategic views of Mackinder and Spykeman 4.4 Political Geography of India: Impact of partition of India	05 04 04	K.D
4.	Paper IV Module 8 Map Interpretation and Survey with Instruments (Pr.) 50 Marks	<u>UNIT-1 : Topographical Sheet (22 Marks)</u> 1.1 Principles of toposheet numbering as followed by Survey of India; Thorough study of plateau region on toposheet of 1:50,000 scale 1.2 Morphometric techniques in 10 x 12 cm area : Relative relief (after Smith), Average slope (after Wentworth), Drainage density and grid-wise Road density with interpretation 1.3 Drawing and analysis of profiles and transect chart with interpretation	04 12 08 10	Z.H

		1.4 Analysis of landforms and correlation between physical and cultural elements under the heads of: relief, drainage, natural vegetation, settlements and transport Unit II: Survey with instruments (20 Marks) 2.1 Contouring by leveling along radial line by a Dumpy Level: at least three radial lines to be set out from a common centre and their relative position to be obtained by measurement of magnetic bearing and/or included angle by Prismatic Compass 2.2 Preparation of Level Book 2.3 Longitudinal /profile leveling by Dumpy Level 2.4 Closed traverse survey by Prismatic Compass	08 04 08 10	K.D

Part III Hons.

Sl no.	Paper/Module	Topic	No. of lecture	Faculty
1.	Part III Module 9 Population and Settlement Geography (Th.) 50 Marks	<u>Unit I: Population Dynamics</u> 1.1 Factors influencing spatial distribution and density of population 1.2 Population growth: global trends and patterns 1.3 Population structure: Age and Sex specific 1.4 Population composition: Economic and Ethnic	04 04 02 02	K.D

		Unit II: Demographic Attributes		K.D
		2.1 Determinants and Measures of Fertility, Morbidity and Mortality; Migration	05	
		2.2 Theories of Population Growth: Malthus and Marx	04 02	
		2.3 Demographic Transition Model		
		2.4 Population-Resource Region (as per Zelinsky)	02	
		Unit III: Rural Settlements		
		3.1 Definition, nature and characteristics of rural settlements	02	K.D
		3.2 Morphology of rural settlements: site and situation, layout-internal and external	04	
		3.3 Rural house types with reference to India	03	
		3.4 Social segregation in rural areas; Census categories of rural settlements	03	
		Unit IV: Urban Settlements	02	
		4.1 Census definition and categories in India	04	K.D
		4.2 Urban morphology: Classical models-Burgess, Homer Hoyt, Harris and Ullman	03	
		4.3 Metropolitan concept, City-region and Conurbation	04	
		4.4 Functional classification of cities: Harris, Nelson and McKenzie		

2.	Paper III Module 10 Regional Geography of India (Th.) 50 Marks	<u>Unit I: Concepts and Bases</u> 1.1 Concept of regions, nature and types of regions 1.2 Approaches to regionalization--scale and dimension 1.3 Bases of regional division--physical 1.4 Bases of regional division – socio-economic Unit II:General Geography of India 2.1 Structure and Physiography 2.2 Drainage (Peninsular and Extra Peninsular) 2.3 Climatic, Edaphic and Biotic regions of India 2.4 Agricultural regions (as per ICAR) Unit III: Case Studies 3.1 Meghalaya Plateau as Physiographic Region 3.2 Damodar Valley as Planning Region 3.3 Western Rajasthan as Arid Region 3.4 Sundarbans as Biotic Region <u>Unit IV: Studies of Geographical Problems</u> 4.1 Problems of unreliability of rainfall 4.2 Problems of soil salinity and its mitigation 4.3 Problems of development of SEZ in India 4.4 Problems of slum and urban	02 03 03 03 04 03 05 03 03 03 03 03 03 03 03	I.S I.S I.S

		rehabilitation in India		
3.	Part III Module 11 Philosophy of Geography (Th.) 50 Marks	Unit I: Nature of Geography 1.1 Geography and its relation with other disciplines 1.2 Encyclopaedism, Geographical ideas during ancient period 1.3 Development of Geography during medieval period 1.4 Emergence of scientific ideas in Modern Geography <u>Unit II: Basic Concepts</u> 2.1 Ideographic and Nomothetic approaches 2.2 Man-Environment relation 2.3 Location, time and space 2.4 Areal differentiation and Spatial organization Unit III: Modern Thoughts 3.1 Empiricism 3.2 Positivism 3.3 Environmental determinism 3.4 Possibilism Unit IV: Contemporary Thoughts 4.1 Structuralism 4.2 Quantitative Revolution 4.3 Radicalism 4.4 Humanistic and Behavioural Approaches	02 03 03 04 03 03 03 04 02 02 05 03 02 04 03 04	K.R K.R K.R K.R

4.	Part III Module 12 Contemporary Issues in Geography (Th.) 50 Marks	Unit I: Climatic and Biotic Hazards in the Indian Sub –continent 1.1 Concept of hazards and disaster: Natural, quasi-natural and man-made hazards 1.2 Seasonal climatic hazards: Flood, and drought—mechanism, environmental impact and management 1.3 Occasional climatic hazards: Hailstorm and tornadoes-mechanism, environmental impact and management 1.4 Biotic hazards: Deforestation and loss of bio-diversity-impact and conservation of biotic resource Unit II: Other Terrestrial Hazards in the Indian Sub-continent 2.1 Edaphic hazards: Salinization and Desertification-mechanism, impact and management 2.2 Geomorphic hazards: Landslide, River bank erosion and Coastal erosion--mechanism, impact and management 2.3 Tectonic hazards: Earthquake--impact and precautionary measures 2.4 Water related hazards: Contamination of ground water and fall of piezometric level Unit III :Human Development in the Third World	02 04 03 03 03 06 02 03	P.D.G P.D.G P.D.G

		3.1 Concept of development and under development; Basic indicators of economic development 3.2 Economic disparity as constraint of development: per capita income, purchasing power and standard of living 3.3 Poverty: Poverty line, Unemployment, Dependency ratio, Work participation and Poverty alleviation 3.4 Economic impact of globalization Unit IV: Human Development in the Third World 4.1 Basic indicators of human and gender development 4.2 Social inequality as constraint of development: caste and religious fundamentalism; gender bias 4.3 Demographic constraint: Population growth, Malnutrition, Food security and Hunger, Morbidity and Mortality 4.5 Sustainable development	02 03 04 03 02 03 04 03	P.D.G
5.	Part III Module 13 Mapping techniques (Pr.) 50	Unit I: Map Projection (20 Marks) 1.1 Concept, classification and suitability (04 Marks) 1.2 Construction and properties of Zenithal Stereographic Projection(Polar Case) 1.3 Non Perspective Projection: : Simple Conical with one standard	04 04	P.D.G

		parallel, Bonne's, Sinusoidal, Polyconic and Cylindrical Equal Area 1.4Mercator's Projection Unit II: Cartograms: Representation of Population Data (12 Marks) 2.1 Choropleth 2.2 Proportional squares 2.3 Dots and Spheres 2.4 Age-Sex Pyramid Unit III: Thematic Mapping with Climatic and Soil Data (10 Marks) 3.1 Climatic chart 3.2 Ternary diagram 3.3 Diagram with data on soil profile	12 04 12 10	K.R I.S
6.	Part III Module 14 GIS and Remote Sensing (Pr.) 50 Marks	UNIT-1: GIS (10 Marks) 1.1 Georeferencing of scanned maps and satellite images applying reference spheroids (WGS-84 and Everest) and Projections (Universal Transverse Mercator's and Polyconic) 1.2 Digitization of point, line and polygon layers; Attachment of appropriate attribute tables 1.3 Digitization of administrative maps and attachment of attribute tables 1.4 Preparation of thematic maps: Choropleths and maps with Bar and Pie diagrams Unit II: Remote Sensing (10 Marks) 2.1 Principles of Photogrammetry, Types of aerial photographs,	16	Z.H

		Determination of scales of aerial photographs 2.2 Identification of physical and cultural features by fusing two overlapping photographs and their verification with topographical sheets with interpretation. 2.3 Preparation and interpretation of land use/land cover map using three overlapping aerial photographs 2.4 Resolution of satellite sensors with special reference to landsat and IRS series; Preparation of standard false colour composites from Landsat and IRS data; Preparation of land use/land cover map with interpretation. Unit IV: Field Report and Viva Voce (15+10)	14 20	K.D Z.H & I.S
7.	Part III Module 15 Statistical Techniques (Pr.) 50 Marks	UNIT-1: Basic Concepts 1.1 Significance of statistical techniques in Geography, nature of statistical data: discrete, continuous, parametric and non-parametric. 1.2 Sampling techniques : random, stratified random and purposive 1.3 Frequency Distribution : Histogram, frequency polygon, ogive, normal and skewed distribution 1.4 Measures of central tendency : mean, median, mode; partition values – quartile, decile and percentile	06 02 10 10	K.D

		Unit II: Dispersion and Regression 2.1 Measures of dispersion: mean deviation, quartile deviation, standard deviation and Co-efficient of variation. 2.2 Bivariate scatter diagram and regression trend line 2.3 Coefficient of correlation after Karl Pearson 2.4 Time series analysis: Moving average, semi average and least square method	08 04 04 06	K.D
8.	Part III Module 16 Contemporary Techniques in Geography (Pr.) 50 Marks	Unit I: Natural Hazards and their Management in the Indian Sub-continent (20 Marks) 1.1 Preparation and interpretation of Ombrothermic charts and Rainfall dispersion diagram (based on IMD data) 1.2 Preparation of Station models for different meteorological stations of India with the help of synoptic chart 1.3 Preparation and interpretation of Rating curves, Hydrographs and Unit hydrographs of rivers flowing through the Indian sub-continent 1.4 Hazard Mapping: Identification and zoning of the following hazards, collation of maps and their interpretation: i) Meteorological drought ii) Flood iii) River bank erosion	06 10 10 08	K.R I.S P.D.G I.S

		Unit II: Economic and Human Development in Third World (20 Marks) 2.1 Computation of Human and Gender Development Index and ranking of countries/states/districts based on HDI and GDI 2.2 Preparation of Questionnaire and Survey schedule for assessment of development and for perception study 2.3 Measures of spatial and size class distribution: i) Dominant distinctive functions ii) Rank size rule iii) Lorenz curve	08 04 08	I.S K.R P.D.G

Sem I General (July 2018 to December 2018)

Sl no.	Paper/Module	Topic	No. of lectures	Faculty
1.	GEO-G-CC-1-01-TH – Physical Geography 60 Marks / 4 Credits	Unit I: Geotectonics 1. Earth's interior with special reference to seismology 2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics 3. Folds and faults: Classification and surface expressions Unit II: Geomorphology 4. Degradational processes: Weathering, mass wasting, and resultant landforms	03 07 06 04	K.R K.R K.R K.R

		5. Principal geomorphic agents. Classification and evolution of fluvial, coastal, aeolian, and glacial landforms 6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology Unit III: Hydrology 7. Global hydrological cycle: Its physical and biological role 8. Run off: Controlling factors. Concept of ecological flow 9. Drainage basin as a hydrological unit. Principles of watershed management Unit IV: Oceanography 10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity 11. Ocean circulation, wave, and tide 12. Marine resources: Classification and sustainable utilisation	12 06 02 03 03 04 07 03	K.R P.D.G I.S I.S I.S I.S P.D.G K.D
	GEO-G-CC-1-01-P – Physical Geography Lab 30 Marks / 2 Credits	1. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline 2. Megascopic identification of rock samples: Granite, basalt, laterite, limestone, shale,	08	K.D

		sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite 3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles (superimposed, projected and composite), Construction and interpretation of relative relief map (c. 5'×5') 4. Extraction of drainage information from Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles	12 20 20	K.D K.R & I.S

Sem II General (January 2019 to June, 2019)

Sl no.	**Paper/Module**	**Topic**	**No. of lectures**	**Faculty**
1.	GEO-G-CC-2-02-TH – Environmental Geography 60 Marks / 4 Credits	Unit I: Climatology 1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure 2. Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls 3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms 4. Overview of global climatic change:	05 06 07	K.R K.R K.R

		Greenhouse effect. Ozone depletion 5. Scheme of world climatic classification by Köppen Unit II: Soil Geography 6. Factors of soil formation 7. Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem 8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status 9. USDA classification of soils. Soil erosion and its management Unit III: Biogeography 10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes 11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes 12. Biodiversity: Types, threats and management with special reference to India	05 02 04 06 06 04 06 05 04	K.R K.R K.D K.D I.S I.S M.D MD M.D
2.	GEO-G-CC-2-02-P – Environmental Geography Lab 30 Marks / 2 Credits	1. Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon 2. Construction and interpretation of	20	K.R

		hythergraph, climograph (G. Taylor) and wind rose (seasonal) 3. Determination of soil type by ternary diagram textural plotting 4. Preparation of peoples' biodiversity register	20 10 10	M.D I.S K.D, I.S, K.R & M.D

Part II General

Sl no.	Paper/Module	Topic	No. of lectures	Faculty
1.	Part II Module 3 CLIMATOLOGY, SOIL AND BIOGEOGRAPHY (50 marks)	4.1 Insolation and Heat Budget; Horizontal and vertical distribution of temperature and pressure; Greenhouse effect 4.2 Monsoon system: its origin and mechanism; Tropical disturbances: thunderstorm and cyclone 4.3 Climatic classification after Koppen 4.4 Origin of soils; Profile development; Concept of zonal, azonal and intrazonal soils 4.5 Properties of soil: Physical and chemical 4.6 Definition of ecosystem and Biomes; Tropical rainforest; Savannah; Hot desert; 4.7 Plant types and distribution (halophyte, xerophytes, hydrophytes and mesophyte); animal communities	05 06 05 05 03 08 03	I.S K.D K.D Z.H Z.H I.S I.S
2.	Part II Module 4 REGIONAL GEOGRAPHY OF INDIA (50 marks)	5.1 Concept of region: formal and functional; scale macro, meso and micro 5.2 Broad physiographic regions of India with special	04 04	I.S I.S

		reference to Western Himalayas 5.3 Vagaries of Indian Monsoon and its impact; problems of flood and drought; Forest resources of India: issues concerning deforestation and bio-diversity; Problems of soil erosion and conservation in India 5.4 Regions of India i) Agricultural regions of India: with special reference to Punjab-Haryana wheat belt ii) Industrial regions of India: with special reference to Hooghly Industrial Belt iii) Planning regions of India; with special reference to DVC Region	06 10	Z.H K.D
3.	Part II Module 5 APPLIED GEOGRAPHICAL TECHNIQUES-I (Pr.) (50 marks)	3.1 Scale: Concept of scale; drawing of linear scale 5 marks 3.2 Statistics: 15 marks i) Nature and classification of data ii) Process of tabulation and graphical representation : histogram, frequency polygon, cumulative frequency curve iii) Measures of central tendency: mean, median and mode 3.3 Map interpretation 22 marks i) Basis of numbering and scale of topographical sheets ii) Interpretation of 1: 50,000 topographical sheets: plain and plateau	04 12	I.S K.D

		region and extraction of geographical information from maps, interpretation and explanation with suitable sketches, profiles and transect chart.	18	Z.H
4.	Part II Module 6 APPLIED GEOGRAPHICAL TECHNIQUES-II (Pr.) (50 marks)	6.1 Map projections: Concept and classification; Simple Conic with One standard Parallel, Cylindrical Equal Area; Polar Zenithal Stereographic. 12 marks 6.2 Cartograms: Bar graphs, simple and compound; proportional divided circles and choropleth. 10 marks 6.3 Project Report: Collection of secondary and primary data on the basis of questionnaire schedule (Mouza Wise/Ward Wise within West Bengal) which must be submitted along with the report. Maps, diagrams and photographs not to exceed 15 pages and text not to exceed 1500 words (Report + viva voce) 12+8= 20 marks	10 08 16	P.D.G I.S Z.H & I.S

Part III General

Sl no.	**Paper/Module**	**Topic**	**No. of lectures**	**Faculty**
1.	Part III Module 7 LAND USE AND SETTLEMENT GEOGRAPHY (50 marks)	7.1 Concept and attributes of land 7.2 Objectives and principles of land use 7.3 Factors influencing land use and land categories i) Agricultural land use ii) Non agricultural land use:	02 02 06	P.D.G

		7.4 Rural and urban settlements: i) Rural settlements: evolution, nature and characteristics, effect of physical environment; ii) Urban settlements: definition, morphology and functions	12	
2.	Part III Module 8 REMOTE SENSING AND THEMATIC MAPPING (20 marks)	8.1 Definition of remote sensing, different methods of remote sensing; air photo and satellite imagery 8.2 Air photo: characteristics, interpretation 8.3 Satellite imagery: Types of satellite imageries, characteristics of IRS imageries 8.4 Definition, objective and principles of thematic mapping (climatic, economic and population)	05 04 04 06	P.D.G
3.	Part III Module 9 APPLIED GEOGRAPHICAL TECHNIQUES – III (Pr.) (30 marks)	9.1 Preparation of land use maps from cadastral maps based on primary or secondary data 9.2 Preparation of thematic maps: flow diagram and accessibility maps 9.3 Air photo interpretation by pocket stereoscope for identification of broad features	06 08 08	P.D.G