VICTORIA INSTITUTION (COLLEGE)

GEOGRAPHY DEPARTMENT (2019 – 2020)

DR. KABERI BRAHMA (LESSON PLAN: 1+1+1 system)

YR.	PAPER	UNIT	TOPIC	NO. OF LECTURE	SESSION
III (H)	V Mod 10	III	Meghalaya Plateau	03	July to Pre Puja
	V Mod 11	III	Empiricism, Positivism	04	
	VI	II	Edaphic Hazards	03	
	VII Mod 14		Preparation of Standard FCC from Landoat and IRs data, Preparation of land use / Land cover map with interpretation		
	VIII Mod 16	I	Station Model. Ombrothermic Chart		
	V Mod 11	III	Environmental determination, Possibilism		Post puja to Winter Vacation
	VI Mod 12	I	1.1, 1.2, 1.3, 1.4 Concept of hazard, Seasonal climatic hazard, Occasional climatic hazard, Biotic hazard	10	
	VII	I	GIS 1.1, 1.2, 1.3, 1.4 Field Report	10	
	VI Mod 12	II	2.1, 2.2, 2.3, 2.4 Edaphic hazard, geomorphic hazard, tectonic hazard, water related hazard		Post Winter to Text Exam
	VII	I	GIS Field Report		
	VIII Mod 16	I	Rainfall dispersion diagram		

PUBALI GHOSH (LESSON PLAN: 1+1+1 system)

HONOURS

PART – III

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE9	IV	CENSUS DEFINITION & CATAGORIES IN INDIA URBAN MORPHOLOGY CLASSICAL MODELS – BURGEES, HOMER HOYT,HARRIS AND ULLMAN METROPOLITAN CONCEPT CITY – REGION & CONURBATION	03 06 06	JULY TO PRE PUJA
MODULE9	IV	FUNTIONAL CLASSIFICATIONOF CITIES : HARRIS NELSON & MCKENZIE	6	POST PUJA TO WINTER VACATION

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE 10	II	STRUCTURE & PHYSIOGRAPHY DRAINAGE : PENINSULAR ANDEXTRA PENINSULAR CLIMATE REGIONS OF INDIA EDAPHIC REGIONS OF INDIABIOTIC REGIONS OF INDIA	4 4 3 3 3 3 3	JULY TO PRE PUJA
MODULE 10	II	AGRICULTURAL REGIONS(AS PER ICAR)	4	POST PUJA TO TEST EXAMINATION

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE 11	1	GEOGRAPHY & ITS RELATION WITH OTHERDISCIPLINES ENCYCLOPAEDISM, GEOGRAPHICAL IDEAS DURING ANCIENT PERIOD DEVELOPMENT OF GEOGRAPHY DURINGMEDIEVAL PERIOD EMERGENCY OF SCIENTIFICIDEAS IN MODERN GEOGRAPHY	03 04 05 06	JULY TO PRE PUJA
MODULE 11	II	IDIOGRAPHIC AND NOMOTHETIC APPROACHES MAN ENVIRONMENT RELATION LOCATION TIME & SPACE AREAL DIFFERENTIATION AND SPATIAL ORGANIZATION	3 3 4 6 6	POST PUJA TO TEST EXAMINATION

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE 12	1	CONCEPT OF HAZARDS & DISASTER NATURAL, QUASI NATURAL & MAN MADE HAZARDS SEAONAL CLIMATE HAZARDS:- FLOOD – MECHANISM ENVIRONMENTAL IMPACT & MANAGEMENT	2 3 4 4	JULY TO PREPUA
MODULE 12	II	OCCASSIONAL CLIMATE HAZARDS:- HAILSTORM- MECHANISM, ENVIRONMENTAL IMPACT &MANAGEMENT OCCASSIONAL CLIMATE HAZARDS:- TORNADOES- MECHANISM, ENVIRONMENTAL IMPACT &MANAGEMENT BIOTIC HAZARDS: DEFORESTATION & LOSS OFBIO DIVERSITY-IMPACT & CONSERVATION OF BIOTIC RESOURCES	4 4 5	POST PUJA TO TEST EXAMINATION

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE 13	III	CLIMATE CHART	3	JULY TO PRE PUJA
	III	TERNARY DIAGRAM DIAGRAMS WITH DATA ON SOIL PROFILE	3 6	POST PUJA TO TEST EXAMINATION

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
MODULE 16	II	COMPUTATION OF HUMAN DEVELOPMENT INDEX & RANKING OF COUNTRIES / STATES / DISTRICT BASE ON HDI	5	JULY TO PRE PUJA
	II	COMPUTATION OF GENDER DEVELOPMENT INDEX & RANKING OF COUNTRIES / STATES / DISTRICT BASE ON GDI	5	JULY TO PRE PUJA
	II	MEASURES OF SPATICAL & SIZE GLASS DISTRIBUTION: DOMINANT – DISTINCTIVE FUNTIONS MEASURES OF SPATICAL & SIZE GLASS DISRIBUTION: • RANK SIZE RULE MEASURES OF CONCENTRATION: • LORENZ CURVE • LOCATION QUOTIENT	5 3 2 2	POST PUJA TO TEST EXAMINATION

GENERAL (PART III)

PAPER	UNIT	TOPIC	NO OF LECTURES	SESSION
IV MODULE VII	1.1	CONCEPT & ATTRIBITION OF LAND	08	JULY TO PRE PUJA
	1.2	OBJECTIVES OF LAND USE	09	
	1.2	PRINCIPLES OF LAND USE	09	
IV MODULE VII	1.3	FACTORS AFFECTING LANDUSE	04	POST PUJA TO TEST EXAMINATION
		FACTORS AFFECTING AGRICULTURAL LAND USE	07	
		FACTORS AFFECTING NON-AGRICULTURAL LAND USE	06	

SASWATI NAYAK (LESSON PLAN: 1+1+1 system)

Year	Paper	Unit	Topic	No of Lectures	Session
Honours 3rd Year	**Paper: V**	**Module:9 Unit:II**	**Definition and characteristics of rural settlement**	**2**	**July – Pre Puja**
			Site and situation of rural settlement	**2**	
		Module:10 Unit: I	**Nature and types of region**	**3**	
			Regionalization: scale and dimension	**4**	
	Paper:VI	**Module:12 Unit:III**	**Basic indicators of development**	**3**	
			Economic disparity as constraint of development	**4**	
	Paper: VII (Practical)	**Module:13 Unit:I**	**Map projection: Concept, Classification and Use**	**2**	
			Simple Conical projection with one Standard parallel	**2**	
			Polar Zenithal Stereographic Projection	**2**	
			Cylindrical Equal AreaProjection	**2**	
			Bonne's projection	**2**	
	Paper: VIIIA	**Module:15 Unit:I**	**Significance of Statistical techniques in Geography**	**1**	
			Sampling techniques	**2**	
			Frequency distribution	**6**	
			Measures of central tendency	**12**	

Year	Paper	Unit	Topic	No of Lectures	Session
Honours 3rd Year	Paper: V	Module:9 Unit:II	Rural house types with reference to India	2	Post- Puja to Winter Recess
			Social segregation in rural India	2	
		Module:10 Unit: I	Physical regional division in India	3	
			Regional socio-economic division of India	4	
	Paper:VI	Module:12 Unit:III	Poverty	4	
			Impact of Globalisation	2	
	Paper: VII (Practical)	Module:13 Unit:I	Sinusoidal projection	2	
			Poly Conic projection	2	
			Mercator"s projection	2	
		Module: 14, Unit:II	Preparation of land use and land cover map using aerial photographs	12	
	Paper: VIIIA	Module:15 Unit:I	Measures of dispersion	8	
			Bi-variate scatter diagram	6	
			Co-efficient of correlation	6	

Year	Paper	Unit	Topic	No of Lectures	Session
Honours 3rd Year	Paper:VII	Module:13 Unit:I	Checking and preparing the laboratory note book	8	Post Winter Recess to Test Examination
	Paper:VIII A Paper:II (Practical)	Module: 14, Unit:II	Practicing the land use map from aerial photo	4	
		Module:15	Time series analysis	8	

PRAKRITI DAS (LESSON PLAN: 1+1+1 system)

Year	Paper	Unit	Topic	No. of lectures	Session
3 Hons	5	Mod 9 Unit II	Demographic attributes(fertility, mortality, morbidity, migration)	5+4+2+2 = 13	July to Pre-Puja
		Mod 10 Unit I & II	Malthus, Marx, Demographic Transition Model, Population resource region. Region, Gujarat, Kerala.	2+3+3+3 = 11	post-Puja to Test examination
	6	Mod II Unit IV	Structuralism, Quantitative Revolution, Radicalism, Humanistic & Behaviouralism	2+4+3+4 = 13	July to Pre-Puja
		Mod 12 Unit IV	Human development in 3rd world (Human & Gender development, social inequality: caste & religion fundamentalism Gender bias, Demographic constraint, Sustainable development	2+3+4+3 = 12	post-Puja to Test examination and July to Pre-Puja
	7	Mod 13, Unit II	Cartograms (choropleth square, dots & sphere, age sex pyramid	Practical class 15	post-Puja to Test examination
	8A	Mod 15 UnitII	Statistics (scatter diagram, regression, coefficient correlation, time series)	Practical class 15	July to Pre-Puja
		Mod 16 Unit I & II	Rating curve, hydrograph, unit hydrograph &questionnaire survey	Practical class 15	post-Puja to Test examination

Year	Paper	Unit	Topic	No. of lectures	Session
General 3	**4**	**Mod VII Unit – 7.4**	**Urban settlement: definition Morphology & functions**	**4**	**July to Pre-Puja**
		Mod IX Unit – 9.2	**Detours index, flow map, Accessibility Maps.**	**10**	**post-Puja to Test examination**

LESSON PLAN FOR CBCS SYSTEM

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
First	Hons	CC – 1 Geotectonics and Geomorphology (Theory)	Earth's tectonic and structural evolution with reference to geological time scale.	PG	3
			Earth's interior with special reference to seismology. Isostasy: Models of Airy, Pratt, and their applicability.	PG	3
			Plate Tectonics as a unified theory of global tectonics: process and landfroms at plate margins and hotspots.	PG	10
			Folds and Faults- origin and types.	PG	4
			Degradational processes: Weathering and resultant landforms.	SN	2.5
			Degradational processes: mass wasting, and resultant landforms.	KB	2.5
			Processes of entrainment, transportation, and deposition by different geomorphic agents. Role	KB	4

			of humans in landfrom development.		
			Development of river network and landforms on uniclinal and folded structures. Surface expression of faults.	KB	7
			Development of river network and landforms on granites,basalts and limestones.	KB	4
			Coastal processes and landfroms.	SN	4
			Glacial and glacio-fluvial processes and landfroms.	KB	4
			Aeolian and fluvio-aeolian processes and landfroms.	KB	4
			Role of time in geomorphology: Schumn and Lichty's model. Models on landscape evolution: Views of Davis, Penk,and Hack. Significance of systems approach.	PD	8
		CC - 1 Geotectonics and Geomorphology Lab (Practical)	Measurement of dip and strike using clinometer.	KB	6
			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.	PG	14
			Extraction and interpretation of geomorphic information 1:50K topographical maps of plateau region: Delineation of drainage basins. Construction of relative relief map,	PD	15

			drainage density map (c.5'*5').		
			Construction of relief profiles (superimposed, projected, composite).	PG	5
			Construction of slope map (Wentworth's method), stream ordering (Strahler), and bifurcation ratio on a drainage basin (c.5'*5').	SN	15
			Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin (c.5'*5')from survey of India 1:50K Topographical maps of plateau region.	KB	5

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
First	Hons	CC – 2 Cartographic Techniques (Theory)	Maps: Components and classification.	PG	4
			Concept and application of scales: Plain, comparative,diagonal, and vernier.	PD	8
			Coordinate systems: Polar and rectangular.	SN	6
			Concept of generating globe.	SN	2
			Grids: Angular and linear systems of measurement.	SN	5
			Bearing: Magneting and true, whole-circle and reduced.	PD	5
			Concept of geoid and spheroid with special reference to Everest and WGS-84.	SN	4
			Map projections: Classification, properties and uses.	SN	8

			Concept and significance of UTM projection.	SN	2
			Representation of data using dots, spheres and divided proportional circles.	KB	5
			Representation of data using isopleth, choropleth, and chorochromatic maps.	PG	5
			Survey of India topographical maps: Reference scheme of open and old series. Information on the margin of maps.	PG	6
		CC – 2 Cartographic Techniques Lab (Practical)	Graphical construction of scales: Plain, comparative, diagonal, and vernier.	PD	16
			Construction of projections : Polar Zenithal Stereographic, Simple conic with one standard parallel, Bonne's.	SN	12
			Construction of projections : Cylindrical Equal Area, and Mercator's.	KB	8
			Thematic maps; Proportional squares, Pie diagrams with proportional circles, dots and sphere.	KB	12
			Thematic maps: Choropleth, isopleth, and chorochromatic maps.	PG	12

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Second	Hons	CC – 3 Human Geography (Theory)	Nature, scope and recent trends. Elements of human geography.	PG	4
			Approaches to Human Geography: resource, locational , landscape, environment.	PG	6
			Concept and classification of race. Ethnicity.	PD	5
			Space, society and cultural regions (language and religion).	PD	5
			Evolution of human societies: Hunting and food gathering, pastoral nomadism , subsistence farming and industrial society.	KB	6
			Human adaptation to environment: Case studies of Eskimos, Masai and Maori.	KB	4
			Population growth and distribution, composition , demographic transition.	PD	5
			Populaion-resource regions(Akerman).	PD	5
			Development-environment conflict.	PG	5
			Types and patterns of rural settlements.	SN	5
			Rural house types in India.	SN	5
			Morphology and hierarchy of urban settlements.	PG	5
		CC - 3 Human Geography	Spatial variations in continent or country level religious compositions by	PG	12

		Lab (Practical)	divided proportional circles.		
			Measuring arithmetic growth rate of population comparing two decadal datasets.	PG	15
			Types of Age-Sex pyramids (progressive, regressive, intermediate and stationary): Graphical representation and analysis.	PD	20
			Nearest neighbor analysis from survey of India 1:50k topographical maps(5'x5').	PG	13

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Second	Hons	CC – 4 Thematic Mapping and Surveying (Theory)	Concepts of rounding, scientific notation. Logarithm and anti logarithm. Natural and log scales.	SN	4
			Concept of diagrammatic representation of data.	PG	2
			Preparation and interpretation of geological maps.	PD	5
			Preparation and interpretation of weather maps.	PG	5
			Preparation and interpretation of land use land cover maps.	KB	5
			Preparation and interpretation of socio-economic maps.	PG	5
			Principle national agencies producing thematic maps in India:	PD	5

			NATMO ,GSI, NBSSLUP, NHO,NRSC/ Bhuvan , etc.		
			Basic concepts of surveying and survey equipments: Prismatic compass.	SN	5
			Basic concepts of surveying and survey equipments: Dumpy level.	SN	7
			Basic concepts of surveying and survey equipments: Theodolite .	KB	7
			Basic concepts of surveying and survey equipments: Abney level .	KB	5
			Basic concepts of surveying and survey equipments: Laser distance measurer.	KB	5
		CC - 4 Thematic Mapping and Surveying (Practical)	Traverse survey using prismatic compass.	SN	10
			Profile survey using dumpy level.	SN	12
			Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite .	KB	18
			Interpretation of geological maps with uniclinal structure, folds, unconformity and intrusions	PD	20

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Third	Hons	CC – 5 Climatology (Theory)	Nature, Composition and layering of the atmosphere.	PG	4
			Insolation: Controlling factors. Heat budget of the atmosphere.	PG	6

			Temperature: Horizontal and vertical distribution. Inversion of temperature: types, causes and consequences.	PG	6
			Overview of climate change: Greenhouse effect. Formation, depletion and significance of the ozone layer.	PG	4
			Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation.	PG	6
			Air mass: Typology, origin, characteristics and modification.	PG	4
			Fronts: Warm and cold, frontogenesis and frontolysis.	PG	5
			Weather: Stability and instability, barotropic and baroclinic conditions.	PG	5
			Circulation in the atmosphere: Planetary winds, jet streams, index cycle.	PG	5
			Atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms.	PG	5
			Monsoon circulation and mechanism with reference to India.	PG	5
			Climatic classification after Thornthwaite (1955) and Oliver.	PD	5
		CC - 5 Climatology Lab (Practical)	Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, rainfall.	PG	15
			Interpretation of a daily weather map of India (any two): Pre-Monsoon, Monsoon and Post-Monsoon.	PG	20
			Construction and interpretation of hythergraph and climograph (G. Taylor).	PG	15
			Construction and interpretation of wind rose.	PG	10

		CC – 6 Hydrology and Oceanography (Theory)	Systems approach in hydrology. Global hydrological cycle: Its physical and biological role.	SN	5
			Run off: Controlling factors. Infiltration and evapotranspiration. Run off cycle.	KB	5
			Drainage basin as a hydrological unit. Principles of water harvesting and watershed management.	KB	5
			Groundwater : Occurrence and storage. Factors controlling recharge, discharge and movement.	SN	5
			Major relief features of the ocean floor: Characteristics and origin according to plate tectonics.	PD	6
			Physical and chemical properties of ocean water.	PD	4
			Water mass, T-S diagram	KB	4
			Air-Sea interactions, ocean circulation, wave and tide.	KB	8
			Ocean temperature and salinity: Distribution and determinants.	PD	4
			Coral reefs: Formation, classification and threats.	KB	5
			Marine resources: Classification and sustainable utilisation.	PD	4
			Sea level change: Types and causes.	KB	5
		CC – 6 Hydrology and Oceanography Lab (Practical)	Construction and interpretation of rating curves.	PD	10
			Construction and interpretation of hydrographs and unit hydrographs.	PD	15
			Monthly rainfall dispersion diagram (Quartile method), Climatic water budget and Ergograph.	KB	25
			Construction of Theissen polygon from precipitation data.	KB	10

		CC – 7 Statistical Methods in Geography (Theory)	Importance and significance of statistics in Geography.	SN	4
			Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio).	SN	5
			Sources of geographical data for statistical analysis.	SN	4
			Collection of data and formation of statistical tables.	SN	5
			Sampling: Need, types and significance and methods of random sampling.	SN	4
			Theoretical distribution: frequency, cumulative frequency, normal and probability.	SN	6
			Central tendency: Mean, median, mode, partition values.	SN	6
			Measures of dispersion range, mean deviation, standard deviation, coefficient of variation.	SN	6
			Association and correlation: Rank correlation, product moment correlation.	PD	5
			Regression: Linear and non-linear.	PD	5
			Time series analysis: Moving average.	SN	5
			Hypothesis testing: Chi-squared and T-test.	PD	5
		CC – 7 Statistical Methods in Geography Lab (Practical)	Construction of data matrix with each row representing an areal unit (districts/ blocks/ mouzas/ towns) and corresponding columns of relevant attributes.	SN	15
			Based on the above, a frequency table, measures of central tendency and dispersion would be computed and interpreted using histogram and frequency curve.	SN	15

			From the data matrix, a sample set (20%) would be drawn using random, systematic and stratified methods of sampling and the samples would be located on a map with an explanation of the methods used.	SN	15
			Based on of the sample set and using two relevant attributes, a scatter diagram and linear regression line would be plotted and residual from regression would be mapped with a short interpretation.	PD	15
		SEC - A-2 Tourism Management (Theory)	Scope and Nature: Concepts and issues, tourism, recreation and leisure inter-relations; Factors influencing tourism, Types of tourism: Ecotourism, cultural tourism, adventure tourism, medical tourism, pilgrimage, international, national.	PD	10
			Use of information on factors (Historical, natural, socio-cultural and economic; motivating factors for pilgrimages) to plan destination marketing; tourism products; niche tourism planning.	SN	5
			Tourism impact assessment, Sustainable tourism, Information Technology and Tourism, Tour operations planning and guiding.	PG	8
			Increasing Global tourism ; Tourism in India: Tourism infrastructure, access, planning for different budgets for case study sites of Western Himalayas, Goa, Chilka/Vembanad, Jaipur.	KB	7

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Fourth	Hons	CC - 8 Economic Geography (Theory)	Meaning and approaches to economic geography	PD	4
			Concepts in economic geography: Goods and services, production, exchange, and consumption.	PD	6
			Concept of economic man. Theories of choices.	PD	6
			Economic distance and transport costs.	PD	4
			Concept and classification of economic activities.	PD	4
			Factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber).	SN	6
			Primary activities: Agriculture, forestry, fishing, and mining.	KB	6
			Secondary activities: Classification of manufacturing, concept of manufacturing regions, special economic zones and technology parks.	PD	6
			Tertiary activities: Transport, trade and services.	PD	6
			Transnational sea-routes, railways and highways with reference to India.	PD	4
			International trade and economic blocs.	PD	4
			WTO and BRICS: Evolution, structure and functions.	PD	4
		CC - 8 Economic Geography Lab (Practical)	Choropleth mapping of state-wise variation in GDP.	PD	10
			State-wise variation in occupational structure by proportional divided circles.	PD	15
			Time series analysis of industrial production (India and West Bengal).	KB	20
			Transport network analysis by detour index and shortest path analysis.	PD	15
		CC - 9 Regional	Regions: Concept, types, and delineation.	PG	4

		Planning and Development (Theory)	Regional Planning: Types, principles, objectives, tools and techniques.	PG	6
			Regional planning and multi-level planning in India.	PG	6
			Concept of metropolitan area and urban agglomeration.	PG	4
			Concept of growth and development, growth versus development.	PG	4
			Indicators of development: Economic, demographic, and environmental.	PG	6
			Human development: Concept and measurement.	SN	4
			Theories and models for regional development: Cumulative causation (Myrdal).	KB	4
			Models and theories in regional development: Stages of development (Rostow), growth pole model (Perroux).	PG	6
			Underdevelopment: Concept and causes .	SN	4
			Regional development in India: Disparity and diversity.	PG	5
			Need and measures for balanced development in India.	PG	5
		CC - 9 Regional Planning and Development Lab (Practical)	Delineation of formal regions by weighted index method.	PG	15
			Delineation of functional regions by breaking point analysis .	PD	15
			Measurement of inequality by location quotient.	PG	15
			Measuring regional disparity by Sopher index.	PG	15
		CC - 10 Soil and Biogeography (Theory)	Factors of soil formation.	KB	3
			Definition and significance of soil properties: Texture, structure, and moisture.	KB	5
			Definition and significance of soil properties: pH, organic matter, and NPK.	KB	5
			Soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils.	KB	6

			Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation.	KB	5
			Principles of soil classification: Genetic and USDA. Concept of land capability and its classification.	KB	6
			Concepts of biosphere, ecosystem, biome, ecotone, community and ecology.	SN	5
			Concepts of trophic structure, food chain and food web. Energy flow in ecosystems.	SN	5
			Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes.	SN	8
			Bio-geochemical cycles with special reference to carbon dioxide and nitrogen.	SN	4
			Deforestation: Causes, consequences and management.	SN	4
			Biodiversity: Definition, types, threats and conservation measures.	SN	4
		CC - 10 Soil and Biogeography Lab (Practical)	Determination of soil reaction (pH) and salinity using field kit.	KB	15
			Determination of soil type by ternary diagram textural plotting .	KB	15
			Plant species diversity determination by matrix method.	SN	10
			Time series analysis of biogeography data.	SN	20
		SEC-B-3 Rural Development (Theory)	Rural Development: Concept, basic elements, measures of level of rural development.	PD	5
			Paradigms of rural development: Gandhian approach to rural development Lewis model of economic development, ‘big push’ theory of development, Myrdal’s model of ‘spread and backwash effects'.	SN	10
			Area based approach to rural development: Drought prone area programmes, PMGSY, SJSY, MNREGA, Jan Dhan Yojana.	KB	10

			Rural Governance: Panchayati Raj System and rural development policies and Programmes in India.	PG	5

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
First	General	CC 1/GE 1 Physical Geography (Theory)	Earth's interior with special reference to seismology	PG	3
			Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics	PG	7
			Folds and faults: Classification and surface expressions	PG	6
			Degradational processes: Weathering, mass wasting, and resultant landforms	KB	4
			Principal geomorphic agents. Classification and evolution of fluvial, coastal, aeolian, and glacial landforms	KB	12
			Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology	PD	6
			Global hydrological cycle: Its physical and biological role	SN	2
			Run off: Controlling factors. Concept of ecological flow	SN	3
			Drainage basin as a hydrological unit.	KB	3

			Principles of watershed management		
			Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity	PD	4
			Overview of air-sea interactions. Ocean circulation, wave, and tide	SN	7
			Marine resources: Classification and sustainable utilisation	PD	3
		CC 1/GE 1 Physical Geography Lab (Practical)	Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline	PG	8
			Megascopic identification of rock samples: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite	PG	12
			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	SS	20

			relative relief map (c. 5'×5')		
			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	SS	20

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Second	General	CC 2/GE 2 Environmental Geography (Theory)	Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure	PG	5
			Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls	PG	6
			Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms	PD	7
			Overview of global climatic change: Greenhouse effect. Ozone depletion	PG	5
			Scheme of world climatic classification by Köppen	PD	2
			Factors of soil formation	KB	4
			Soil profile development under different climatic conditions: Laterite,	KB	6

			Podsol, and Chernozem		
			Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status	KB	6
			USDA classification of soils. Soil erosion and its management	PD	4
			Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes	SN	6
			Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes	SN	5
			Biodiversity: Types, threats and management with special reference to India	SN	4
		CC 2/GE 2 Environmental Geography Lab (Practical)	Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon	SS	20
			Construction and interpretation of hythergraph, climograph (G. Taylor) and wind rose (seasonal)	SS	20
			Determination of soil type by ternary diagram textural plotting	SS	10
			Preparation of peoples' biodiversity register	PD	10

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Third	General	CC 3/GE 3 Human Geography (Theory)	Sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities	PG	5
			Location of economic activities: Theories of von Thünen, Lösch, and Weber	PG	5
			Location of industries with special reference to India: Cotton, Iron and Steel	SN	5
			Globalisation and integration of world economies	PD	5
			Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects	SN	5
			Types and characteristics of social organisations: Primitive, hunting–gathering, agrarian, industrial	SN	5
			Race, Language and Religion: Origin, characteristics and spatial variations	KB	6
			Social Issues: Diversity, conflict and transformation	KB	5
			Carl Sauer: cultural landscape and its elements	PG	6
			Rural and urban settlements: Differentiation in cultural landscapes	KB	5

			Cultural regions and cultural realms	PD	5
			Diffusion of culture and innovations	PD	4
		CC 3/GE 3 Human Geography Lab (Practical)	State-wise variation in occupational structure by proportional divided circles	SS	15
			Time series analysis of industrial production using any two manufactured goods from India	SS	20
			Measuring arithmetic growth rate of population comparing two datasets	SS	15
			Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps	SS	10
		SEC A 2 Forest & Wildlife Management (Theory)	Forest and wildlife management: Importance and strategies. Role and significance of stakeholders. Tangible and intangible benefits of forest and wildlife management	PG	7
			Legal framework of forest and wildlife protection in India: The Indian Forest Act 1927, Forest Conservation Act 1980, Wild Life Protection Act 1972, Biodiversity Act 2002	SN	5
			Forests as common property resources. Forest rights: Tribals and forests. Gender dimension of forest management. Management of poaching and illegal logging.	PD	8

			Principles of community participation and joint forest management. Causes and management of human–wildlife conflicts with special reference to Jangal Mahal, Sundarban and Duars [	KB	10

Semester	Programme	Course and Name of the Paper	Topic	Teacher	No. Of hours
Fourth	General	CC 4/GE 4 Cartography (Theory)	Maps: Classification and types. Scales: Types, significance, and applications	PD	3
			Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced	SN	3
			Map projections: Classification, properties and uses. Concept and significance of UTM projection	KB	8
			Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps	PG	4
			Representation of data by dots and proportional circles	PG	4
			Representation of data by isopleth and choropleth	SN	4
			Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform	PD	5
			Basics of Remote Sensing: Types of	PD	10

			satellites, sensors, bands, and resolutions with special reference to 1the ISRO missions		
			Principles of preparing standard FCCs and classified raster images	KB	5
			Principles of Geographical Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis	KB	6
			Basic concepts of surveying and survey equipment: Prismatic compass	SN	6
			Basic concepts of surveying and survey equipment: Dumpy level	KB	6
		CC 4/GE 4 Cartography Lab (Practical)	Graphical construction of scales: Plain and comparative	SS	10
			Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area,, and Polar Zenithal Stereographic	SS	20
			Construction of thematic maps: Proportional squares, proportional circles, choropleths, and isopleths	SS	20
			Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k	SS	10
		SEC B4 Sustainable Development (Theory)	Sustainable development: Concept, Historical background, components, limitations	PG	5
			Global goals for sustainable development: Domain, conflict, crisis and compromise	KB	7
			Challenges of sustainable development: Determinants, linkage among sustainable	PD	10

			development, environment and poverty		
			Global environmental issues: Population, income and urbanization, health care, forest and water resources	SN	8