Gokhale Memorial Girls' College

Department of Geography

Academic Calendar 2019-20

Sem I (Hons.)

SL. NO	**2.1** **GEO-A-CC-1-01-TH–Geotectonics and Geomorphology**✧60Marks/4Credits	No. of lectures	Faculty
	Unit I: Geotectonics		
1	Earth's tectonic and structural evolution with special reference to geological time scale	3	KR
2	Earth's interior with special reference to seismology. Isostasy:Models of Airy, Pratt and their application	3	KR
3	Plate tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots	10	KR
4	Folds and Faults – origin and types	4	MD
	Unit I: Geomorphology		
5	Degradational processes: Weathering, mass wasting and resultant landforms	5	KR
6	Processes of entrainment, transportation and deposition by different geomorphic agents. Role of humans in landform development	4	KR, MD
7	Development of river network and landforms on uniclinal and folded structure. Surface expression of faults	6	MD
8	Development of river network and landforms on granites, basalts and limestones	5	MD
9	Coastal processes and landforms	4	KR
10	Glacial and glacio-fluvial processes and landforms	4	MD
11	Aeolian and fluvio-aeolian processes and landforms	4	KR
12	Role of time and systems approach in geomorphology. Models on landscape evolution: Views of Davis, Penck, King and Hack	8	MD

SL. NO	**2.1** **GEO-A-CC-1-01-P–Geotectonics and Geomorphology**✧60Marks/4Credits	No. of lectures	Faculty
1	Measurement of dip and strike using clinometer	6	MD
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	14	KDG
3	Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Delineation of drainage basin, construction of relief profiles (superimposed, projected and composite), relative relief map, slope map (Wentworth's method), stream ordering (Strahler) and bifurcation ration on a drainage basin	30	IS, KR, MD
4	Construction of hypsometric curve and derivation of hypsometric integer from Survey of India 1:50k topographical maps of plateau region	10	IS
5	Viva-voce based on laboratory notebook	5	

SL. NO	**2.1** **GEO-A-CC-1-02-TH–Cartographic Techniques**✧60Marks/4Credits	No. of lectures	Faculty
1	Maps: Components and classification [4]	4	IS
2	Concept and application of scales: Plain, comparative, diagonal and Vernier [8]	8	KR
3	Coordinate systems: Polar and rectangular[6]	6	KDG
4	Concept of generating globe[2]	2	KDG
5	Grids: Angular and linear systems of measurement[5]	5	KDG
6	Bearing: Magnetic and true, whole-circle and reduced[5]	5	KDG
7	Concept of geoid and spheroid with special reference o Everest and WGS-84[4]	4	KDG
8	Map projections: Classification, properties and uses[8]	8	KR
9	Concept and significance of UTM projection[2]	2	KDG
10	Representation of data using dots, spheres and divided proportional circles[5]	5	IS

11	Representation of data using isopleth, choropleth, and chorochromatic maps[5]	5	MD
12	Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps[6]	6	MD

SL NO.	**2.1 GEO-A-CC-1-02-P–Cartographic Techniques Lab**✧30Marks/2Credits	No. of lectures	Faculty
1	Graphical construction of scales: Plain, comparative, diagonal and Vernier[16]	16	KR
2	Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's	20	KDG, IS, KR
3	Thematic maps: Proportional squares, pie diagrams with proportional circles, dots and spheres[12]	12	IS, MD
4	Thematic maps: Choropleth, isopleth, and chorochromatic maps [12]	12	KDG, MD
5	Viva-voce based on laboratory notebook (5 Marks)		

Sem II & III (Hons.)

SL NO.	**2.1 GEO-A-CC-2-03-TH–Human Geography**✧60Marks/4Credits	No. of lectures	Faculty
1	Nature, scope and recent trends. Elements of human geography [4]	4	KR
2	Approaches to Human Geography: Resource, locational, landscape, environment [6]	6	KR
3	Concept and classification of race. Ethnicity [5]	5	IS
4	Space, society, and cultural regions (language and religion) [5]	5	IS
5	Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, and industrial society [6]	6	KDG
6	Human adaptation to environment: Case studies of Eskimo, Masai and Maori [4]	4	MD
7	Population growth and distribution, composition; demographic transition [5]	5	KDG
8	Population–resource regions (Ackerman) [5]	5	KDG

9	Development–environment conflict [5]	5	MD
10	Types and patterns of rural settlements [5]	5	KDG
11	Rural house types in India [5]	5	MD
12	Morphology and hierarchy of urban settlements [5]	5	IS

Sl no.	**2.1** **GEO-A-CC-2-03-P–Human Geography Lab**✧30Marks/2Credits	No. of lectures	Faculty
1	-Spatial variation in continent- or country-level religious composition by divided proportional circles [12]	12	IS
2	Measuring arithmetic growth rate of population comparing two decadal datasets [15]	15	MD
3	Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis [20]	20	MD
4	Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5’ x 5’) [13]	13	IS
5	Viva-voce based on laboratory notebook (5 Marks)		

Si no.	**2.1** **GEO-A-CC-2-04-TH – Thematic Mapping and Surveying** ✧ 60Marks/4Credits	No. of lectures	Faculty
1	Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales [4]	4	MD
2	Concept of diagrammatic representation of data [2]	2	IS
3	Preparation and interpretation of geological maps [5]	5	KR
4	Preparation and interpretation of weather maps [5]	5	MD
5	Preparation and interpretation land use land cover maps [5]	5	IS
6	Preparation and interpretation of socio-economic maps [5]	5	IS
7	Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [5]	5	MD
8	Basic concepts of surveying and survey equipment: Prismatic compass [5]	5	KDG
9	Basic concepts of surveying and survey equipment: Dumpy level [7]	7	KDG
10	Basic concepts of surveying and survey equipment: Theodolite [7]	7	KDG
11	Basic concepts of surveying and survey equipment: Abney level [5]	2	MD
12	Basic concepts of surveying and survey equipment: Laser distance measurer [5]	5	MD

Sl no.	**2.1** **GEO-A-CC-2-04-P–Thematic Mapping and Surveying Lab**✧30Marks/2Credits	No. of lectures	Faculty
1	Traverse survey using prismatic compass [10]	10	KDG
2	Profile survey using dumpy Level [12]	12	KDG

3	Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite [18]	18	KDG
4	Interpretation of geological map with uniclinal structure, folds, unconformity, and intrusions [20]	20	KR
5	Viva-voce based on laboratory notebook (5 Marks		

Sl no.	**2.1 GEO-A-CC-3-05-TH–Climatology✧60 Marks / 4 Credits**	No. of lectures	Faculty
1	Nature, composition and layering of the atmosphere [4]	4	KR
2	Insolation: Controlling factors. Heat budget of the atmosphere [6]	6	KR
3	Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences [6]	6	KR
4	Overview of climate change: Greenhouse effect. Formation, depletion, and significance of the ozone layer [4]	4	KR
5	Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation [6]	6	KR
6	Air mass: Typology, origin, characteristics and modification [4]	4	KR
7	Fronts: Warm and cold, frontogenesis, and frontolysis [5]	5	MD
8	Weather: Stability and instability, barotropic and baroclinic conditions [5]	5	MD
9	Circulation in the atmosphere: Planetary winds, jet streams, index cycle [5]	5	MD
10	Atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms [5]	5	MD
11	Monsoon circulation and mechanism with reference to India [5]	5	MD
12	Climatic classification after Thornthwaite (1955) and Oliver [5]	5	MD

Sl no.	**2.1 GEO-A-CC-3-05-P–Climatology Lab✧30 Marks / 2 Credits**	No. of lectures	Faculty
1	Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, and rainfall [15]	15	MD
2	Interpretation of a daily weather map of India (any two): Pre-Monsoon, Monsoon, and Post-Monsoon [20]	20	KR
3	Construction and interpretation of hythergraph and climograph (G. Taylor) [15]	15	IS
4	Construction and interpretation of wind rose [10]	10	MD
5	Viva-voce based on laboratory notebook (5 Marks)		

Sl no.	**GEO-A-CC-3-06-TH–Hydrology and Oceanography✧60Marks/4Credits**	No. of lectures	Faculty
1	Systems approach in hydrology. Global hydrological cycle: Its physical and biological role [5]	5	IS
2	Run off: controlling factors. Infiltration and evapo-transpiration. Run off cycle [5]	5	IS
3	Drainage basin as a hydrological unit. Principles of water harvesting and watershed management [5]	5	IS

4	Groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement [5]	5	IS
5	Major relief features of the ocean floor: Characteristics and origin according to plate tectonics [6]	6	IS
6	Physical and chemical properties of ocean water [4]	4	IS
7	Water mass, T–S diagram [4]	4	MD
8	Air-Sea interactions, ocean circulation, wave and tide [8]	8	MD
9	Ocean temperature and salinity: Distribution and determinants [4]	4	MD
10	Coral reefs: Formation, classification and threats [5]	5	MD
11	Marine resources: Classification and sustainable utilisation [4]	4	MD
12	Sea level change: Types and causes [5]	5	MD
Sl no.	**2.1 GEO-A-CC-3-06-P–Hydrology and Oceanography Lab**✧30Marks/2Credits	No. of lectures	Faculty
1	Construction and interpretation of rating curves [10]	10	MD
2	Construction and interpretation of hydrographs and unit hydrographs [15]	15	MD
3	Construction and interpretation of monthly rainfall dispersion diagram (Quartile method), Climatic water budget and Ergograph [25]	25	KR
4	Construction of Theissen polygon from precipitation data [10]	10	IS
5	Viva-voce based on laboratory notebook (5 Marks)		

Sl no.	**2.1 GEO-A-CC-3-07-TH–Statistical Methods in Geography**✧60Marks/4Credits	No. of lectures	Faculty
1	Importance and significance of statistics in Geography [4]	4	KDG
2	Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) [5]	5	KDG
3	Sources of geographical data for statistical analysis [4]	4	KDG
4	Collection of data and preparation of statistical tables [5]	5	KDG
5	Sampling: Need, types, significance, and methods of random sampling [4]	4	KDG
6	Theoretical distribution: Frequency, cumulative frequency, normal, and probability [6]	6	KDG
7	Central tendency: Mean, median, mode, and partition values [6]	6	KDG
8	Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation [6]	6	KDG
9	Association and correlation: Product moment correlation and rank correlation, [5]	5	MD
10	Regression: Linear and non-linear [5]	5	MD
11	Time series analysis: Moving average [5]	5	KDG
12	Hypothesis testing: Chi-square test and T-test [5]	5	MD
Sl no.	**2.1 GEO-A-CC-3-07-P–Statistical Methods in Geography Lab**✧30Marks/2Credits	No. of lectures	Faculty
1	Construction of data matrix with each row representing an areal unit (districts / blocks /mouzas / towns) and corresponding columns of relevant attributes [15]	15	KDG

2	Based on the above, a frequency table, measures of central tendency, and dispersion would be computed and interpreted using histogram and frequency curve [15]	15	KDG
3	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 [15]	15	KDG
4	Based on 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 [15]	15	KDG
5	Viva-voce based on laboratory notebook (5 Marks)		

Sl no.	**4.1** **GEO-A-SEC-A-3-02-TH – Tourism Management**✧90 Marks / 2 Credits	No. of lectures	Faculty
1	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 [10]	10	IS
2	Use of information on factors (historical, natural, socio-cultural and economic; motivating factors for pilgrimages) to plan destination marketing; tourism products. Niche tourism planning[5]	5	IS
3	Tourism impact assessment, Sustainable tourism, Information Technology and Tourism, Tour operations planning and guiding[8]	8	KDG
4	Increasing Global tourism; Tourism in India: Tourism infrastructure, access, planning for different budgets for case study sites of Western Himalayas, Goa, Chilka / Vembanad, Jaipur[7]	7	KDG

Sem IV (Hons.)

Sl no.	**2.1** **GEO-A-CC-4-08-TH–Economic Geography** ✧ 60Marks/4Credits	No. of lectures	Faculty
1	Meaning and approaches to economic geography [4]	4	KDG
2	Concepts in economic geography: Goods and services, production, exchange, and consumption [6]	6	KDG
3	Concept of economic man. Theories of choices [6]	6	KDG
4	Economic distance and transport costs [4]	4	KDG
5	Concept and classification of economic activities[4]	4	KDG
6	Factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber)[6]	6	MD
7	Primary activities: Agriculture, forestry, fishing, and mining[6]	6	MD
8	Secondary activities: Classification of manufacturing ,concept of manufacturing regions, special economic zones and technology parks[6]	6	MD
9	Tertiary activities: Transport, trade and services[6]	6	MD
10	Transnational sea-routes, railways and highways with reference to India[4]	4	MD
11	International trade and economic blocs[4]	4	MD
12	WTO and BRICS: Evolution, structure and functions[4]	4	KDG

Sl no.	**2.1** **GEO-A-CC-4-08-P–Economic Geography Lab** ✧ 30Marks/2Credits	No. of Lectures	Faculty
1	Choropleth mapping of state-wise variation in GDP [10]	10	MD
2	State-wise variation in occupational structure by proportional divided circles [15]	12	MD
3	Time series analysis of industrial production (India and West Bengal) [20]	20	KDG
4	Transport network analysis by detour index and shortest path analysis [15]	15	KDG
5	Viva-voce based on laboratory notebook (5 Marks)		

Sl no.	**2.1** **GEO-A-CC-4-09-TH–Regional Planning and Development** ✧ 60Marks/4Credits	No. of lectures	Faculty
1	Regions: Concept, types, and delineation[4]	4	IS
2	Regional Planning: Types, principles, objectives, tool and techniques[6]	6	IS
3	Regional planning and multi-level planning in India[6]	6	IS
4	Concept of metropolitan area and urban agglomeration[4]	4	IS
5	Concept of growth and development, growth versus development[6]	6	IS
6	Indicators of development: Economic, demographic, and environmental[6]	6	IS

7	Human development: Concept and measurement[4]	4	KR
8	Theories and models for regional development: Cumulative causation (Myrdal)[4]	4	KR
9	Models and theories in regional development: Stages of development (Rostow), growth pole model (Perroux)[6]	6	KR
10	Under development: Concept and causes[4]	4	KR
11	Regional development in India: Disparity and diversity[5]	5	KR
12	Need and measures for balanced development in India[5]	5	KR
Sl no.	**2.1 GEO-A-CC-4-09-P–Regional Planning and Development Lab** ✧30Marks/2C r e d I t s	No. of lectures	Faculty
1	Delineation of formal regions by weighted index method[15]	15	IS
2	Delineation of functional regions by breaking point analysis[15]	15	IS
3	Measurement of inequality by location quotient[15	15	KR
4	Measuring regional disparity by Sopher index[15]	15	KR
5	Viva-voce based on laboratory notebook (5Marks)		

Sl no.	**2.1 GEO-A-CC-4-10-TH–Soil and Biogeography** ✧60Marks/4Credits	No. of lectures	Facu
1	Factors of soil formation[3]	3	KDG
2	Definition and significance of soil properties: Texture, structure, and moisture[5]	5	KDG
3	Definition and significance of soil properties: pH, organic matter, and NPK[5]	5	KDG
4	Soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils[6]	6	KDG
5	Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation[5]	5	KDG
6	Principles of soil classification: Genetic and USDA. Concept of land capability and its classification[6]	6	KDG
7	Concepts of biosphere, ecosystem, biome, ecotone, community and ecology[5]	5	IS
8	Concepts of trophic structure, food chain and food web. Energy flow in ecosystems[5]	5	IS
9	Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes[8]	8	IS
10	Bio-geochemical cycles with special reference to carbon di oxide and nitrogen[4]	4	IS
11	Deforestation: Causes, consequences and management[4]	4	IS

12	Biodiversity: Definition, types, threats and conservation measures[4]	4	IS

Sl no.	**2.1** **GEO-A-CC-4-10-P–Soil and Biogeography Lab** ✧ 30Marks/2Credits	No. of lectures	Facul
1	Determination of soil reaction (pH) and salinity using field kit[15]	15	KDG
2	Determination of soil type by ternary diagram textural plotting[15]	15	IS
3	Plant species diversity determination by matrix method[10]	10	IS
4	Time series analysis of biogeography data[20]	20	KDG
5	Viva-voce based on laboratory note book (5Marks)		

Sl no.	**4.1** **GEO-A-SEC-B-4-03-TH – Rural Development** ✧ 90 Marks /2 Credits	No. of lectures	Faculty
1	Rural Development: Concept, basic elements, measures of level of rural development [5]	5	KR
2	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' [10]	10	KR
3	Area based approach to rural development: Drought prone area programmes, PMGSY, SJSY, MNREGA, Jan DhanYojana [10]	10	MD
4	Rural Governance: Panchayati Raj System and rural development policies and Programmes in India [5]	5	MD

Part III Hons.

Sl no.	**Paper/Module**	**Topic**	**No. of lecture**	**Faculty**
1.	Part III Module 9 Population and Settlement Geography (Th.) 50 Marks	Unit I: Population Dynamics 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	04 04 02	K.D

		1.4 Population composition: Economic and Ethnic	02	
		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	02 03 03 03 04 03 05 03 03 03 03 03 03 03 03 03	I.S I.S I.S I.S

		4.3 Problems of development of SEZ in India 4.4 Problems of slum and urban 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	02 04 03 03 03 06 02 03	P.D.G P.D.G

		Unit III :Human Development in the Third World 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 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)	04 04	P.D.G

		1.3 Non Perspective Projection: : Simple Conical with one standard 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)	16	Z.H

		2.1 Principles of Photogrammetry, Types of aerial photographs, 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,	06 02 10	K.D

		mode; partition values – quartile, decile and percentile 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	10 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	06 10 10 08	K.R I.S P.D.G I.S

		ii) Flood iii) River bank erosion 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

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: 7.4 Rural and urban settlements: i) Rural settlements: evolution, nature and characteristics, effect of physical environment; ii) Urban settlements: definition, morphology and functions	02 02 06 12	P.D.G

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

Sem I GE

Sl no.	**5.1 GEO-G-CC-1-01-TH–Physical Geography✧60 Marks✤/ 4 Credits**	No. of lectures	Faculty
1	Earth's interior with special reference to seismology[3]	3	KR
2	Plate Tectonic as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics[7]	7	KR
3	Folds and faults: Classification and surface expressions[6]	6	MD
4	Degradational processes: Weathering, mass wasting, and resultant landforms[4]	4	KR
5	Principal geomorphic agents. Classification and evolution of fluvial, coastal, aeolian, and glacial landforms[12]	12	MD
6	Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology [6].	6	MD

7	Global hydrological cycle: Its physical and biological role[2]	2	IS
8	Run off: Controlling factors. Concept of ecological flow[3]	3	IS
9	Drainage basin as a hydrological unit. Principles of watershed management[3]	3	IS
10	Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity[4]	4	IS
11	Ocean circulation, wave, and tide[7]	7	MD
12	Marine resources: Classification and sustainable utilisation[3]	3	KDG

Sl. no	**5.1 GEO-G-CC-1-01-P – Physical Geography Lab**✧30 Marks / 2 Credits	No. of lectures	Faculty
1	Megascopic identification of *mineral samples*: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline[8]	8	KDG
2	Megascopic identification of *rock samples*: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite[12]	12	KDG
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') [20]	20	MD
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[20]	20	IS
5	Viva-voce based on laboratory notebook(5Marks)		

Sem II GE

Sl no.	**5.1 GEO-G-CC-2-02-TH – Environmental Geography**✧60 Marks / 4 Credits	No. of Lectures	Faculty
1	Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure[5]	5	KR
2	Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls[6]	6	MD
3	Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms[7]	7	MD
4	Overview of global climatic change: Greenhouse effect. Ozone depletion[5]	5	IS
5	Scheme of world climatic classification by Köppen[2]	2	KDG

6	Factors of soil formation[4]	4	KDG
7	Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem[6]	6	KDG
8	Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status[6]	6	IS
9	USDA classification of soils. Soil erosion and its management[4]	4	IS
10	Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes[6]	6	MD
11	Plant types, occurrence and ecological adaptations :Halophytes, xerophytes, hydrophytes, and mesophytes[5]	5	MD
12	Biodiversity: Types, threats and management with special reference to India[4]	4	MD

Sl no.	**5.1 GEO-G-CC-2-02-P – Environmental Geography Lab**✧30 Marks / 2 Credits	No. of lectures	Faculty
1	Interpretation of daily weather map of India (anyone): Pre-Monsoon or Monsoon or Post-Monsoon[20]	20	KR
2	Construction and interpretation of hythergraph, climograph (G. Taylor) and windrose (seasonal)[20]	20	MD
3	Determination of soil type by ternary diagram textural plotting[10]	10	IS
4	Preparation of peoples' biodiversity register[10]	10	KDG
5	Viva-voce based on laboratory notebook(5Marks)		

Sem III GE

Sl no.	**5.1 GEO-G-CC-3-03-TH – Human Geography**✧60 Marks / 4 Credits	No. of lectures	Faculty
1	Sectors of the economy: Primary, Secondary,Tertiary and Quaternary. Factors affecting location of economic activities[5]	5	KDG
2	Location of economic activities: Theories of Von Thünen, Lösch, and Weber[5]	5	KDG
3	Location of industries with special reference to India: Cotton, Iron and Steel[5]	5	KR
4	Globalisation and integration of world economies[5]	5	KR
5	Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects[5]	5	MD

6	Types and characteristics of social organisations: Primitive, hunting–gathering, agrarian, industrial[5]	5	KDG
7	Race, Language and Religion: Origin, characteristics and spatial variations[6]	6	IS
8	Social Issues: Diversity, conflict and transformation[5]	5	KR
9	Carl Sauer: cultural landscape and its elements[6]	6	IS
10	Rural and urban settlements: Differentiation in cultural landscapes[5]	5	MD
11	Cultural regions and cultural realms[5]	5	IS
12	Diffusion of culture and innovations[4]	4	MD

Sl no.	**5.1 GEO-G-CC-3-03-P – Human Geography Lab✧30 Marks / 2 Credits**	No. of lectures	Faculty
1	State-wise variation in occupational structure by proportional divided circles[15]	15	KR
2	Time series analysis of industrial production using any two manufactured goods from India[20]	20	KDG
3	Measuring arithmetic growth rate of population comparing two datasets[15]	15	MD
4	Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps[10]	10	IS
5	Viva-voce based on laboratory notebook(5Marks)		

Sem IV GE

Sl. no	**5.1 GEO-G-CC-4-04-TH –Cartography✧60 Marks / 4 Credits**	No. of lectures	Faculty
1	Maps: Classification and types. Scales: Types, significance, and applications[3]	3	IS
2	Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced[3]	3	IS
3	Map projections: Classification, properties and uses. Concept and significance of UTM projection[8]	8	IS
4	Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps[4]	4	MD
5	Representation of data by dots and proportional circles[4]	4	MD
6	Representation of data by isopleths and choropleth[4]	4	MD
7	Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform[5]	5	MD

8	Basics of Remote Sensing: Types of satellites, sensors, bands, and resolutions with special reference to the ISRO missions[10]	10	KR
9	Principles of preparing standard FCCs and classified raster images[5]	5	KR
10	Principles of Geographical Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis[6]	6	KR
11	Basic concepts of surveying and survey equipment: Prismatic compass[6]	6	KDG
12	Basic concepts of surveying and survey equipment: Dumpy level[6]	6	KDG

Sl. No.	**5.1** **GEO-G-CC-4-04-P –Cartography Lab**✧30 Marks / 2 Credits	No. of lectures	Faculty
1	Graphical construction of scales: Plain and comparative [10]	10	KR
2	Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area, and Polar Zenithal Stereographic [20]	20	IS
3	Construction of thematic maps: Proportional squares, proportional circles, choropleths, and isopleths [20]	20	MD
4	Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k [10]	10	KDG
5	Viva-voce based on laboratory notebook (5 Marks)		