GOUR MAHAVIDYALAYA

DEPARTMENT OF GEOGRAPHY

Syllabus Distribution and Curriculum Plan of Four Year UG Program (FYUGP)

Session:- 2026-27

ODD SEMESTERS (July-December)

(I, III, V, and VII)

SEM-I (Major)

Course	Unit	Topic	Teacher	Period	Exp no of Class
GEO-DC-MJ-101A (Theory)					
GEO-DC-MJ-101A GEOTECTONICS (Theory)	Module: -1: Origin of the universe, solar system and Earth's evolution	i) Tidal hypothesis ii) Big Bang theory iii) Tectonic and structural evolution of the earth with special reference to the geological time scale	ST SP	July-Aug	4 3 4
	Module: -2: Earth's Interior, Minerals and Rocks	i) Understanding earth's interior with the help of seismological evidences ii) Concept of Mineral and rocks: types, formation and characteristics	SP PG	Aug-Sep July-Aug	3 6
	Module: -3: Dynamic Earth	i) Isostasy: Theory of Airy and Pratt; Isostatic adjustments, and distribution of gravity anomalies. ii) Continental drifting (Alfred Wegener), and seafloor spreading iii) Plate tectonics; concept of neo-tectonics; iv) Mountain building theories: Kober and A. Holmes	DM SG PD PD	July-Aug July-Aug July-Aug	5 5 7
	Module: -4: Endogenetic process and landforms	i) Earthquake: causes and consequences ii) Volcanoes: causes, types and consequences iii) Folding and faulting: concept, components, types and resulting landforms.	ST DM SG	Sep Sep Sep	3 3 3
GEO-DC-MJ-101B Geotectonics (PRACTICAL) (01(Practical) (01)	Module: -1: Introduction to Map Scale	i) Concept and type of scale ii) Scale conversion; statement scale, ratio Scale (R.F.), graphical Scale (linear, comparative, diagonal and positive vernier); iii) Enlargement and reduction of map (Mathematical)	PD (Upto Diagonal) ST (From Vernier)	Sep-Oct Sep-Oct	5 5
	Module: -2: Minerals and Rocks	ii) Identification of Mineral Specimens and their characteristics (Megascopic study): quartz, bauxite, chalcopyrite, feldspar, galena, calcite, hematite, magnetite, mica, and talc. ii) Identification of Rock specimens and their characteristics (Megascopic study):	PG SG	Sep-Oct Sep-Oct	5 5

		Sandstone, limestone, shale, basalt, granite, pegmatite, gneiss, marble, quartzite, conglomerate,			
	Module: -3: Geological Maps	i) Concepts of geological map ii) Construction of geological section (horizontal, uniclinal and folded structures with unconformities and intrusions) iii) Interpretation of prepared geological section	SP DM	Sep-Oct Sep-Oct	6 3

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SEM-I (SEC)
Paper Name: Introduction to Mapping in Geography (GEO-SEC- 01)

Course	Unit	Topic	Teacher	Period	Exp no of Class
GEO-DC-MJ-101A (Theory)					
Computer Applications in Geography (GEO-SEC- 02)	**Module 1:** Map as a tool of Geography (**15** Hours)	i) Definition, scope, history, types and significance of map in geography. ii) Elements of a map: title, legend, Northline, symbols and scale. iii) Introduction to map projections and coordinate systems and application. iv) Applications of Map: Urban Planning, Environmental and disaster Management	ST PG	Nov Nov	4 5
	Module 2: Conventional Map Reading Skill and applications (**15** Hours)	i) SoI Toposheets ii) Atlas map iii) Cadastral Map	PD	Nov	6
	Module 3: Digital Map Reading Skill and applications (**20** Hours)	i) Bhuvan Portal ii) Google Earth and Google Map iii) Navigation/GPS Map (GNSS, GLONASS, NavIC)	SP	Nov	6
	Module 4: Application and preparation thematic maps (**40** Hours)	i) Thematic map: Choropleth, Isopleth ii) Thematic Map: Pie, Dot and Sphere iii) Landuse/Landcover map: Chorochromatic map	DM SG	Nov Nov	6 6

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SEM-I (Minor)

Course	Unit	Topic	Teacher	Period	Exp no of Class
GEO-DC-MJ-101A (Theory)					
GEO-DC-MJ-101A GEOTECTONICS (Theory)	Module: -1: Origin of the universe and solar system	i) Big bang theory	ST	July-Aug	4
		ii) Classical theories regarding origin of the solar system: Monastic and dualistic concepts			3
		iii) Tidal hypothesis	SP		4
	Module: -2: Interior of the Earth	i) Direct and indirect sources understanding the earth's interior	SP	Aug-Sep	3
		ii) Seismology and seismic waves			
		iii) Earth's interior with special reference to seismological evidences	PG	July-Aug	6
	Module: -3: Origin of the continents, oceans and mountains	i) Continental drift theory after Alfred Wegner	DM	July-Aug	5
		ii) Plate Tectonic Theory	SG	July-Aug	5
		iii) Geosyncline Theory of Kober	PD	July-Aug	5
	Module: -4: Endogenetic process and landforms	i) Volcanoes: Concept and types	ST	Sep	3
		ii) Folding: Concept, classification and resulting landforms	DM	Sep	3
		iii) Faulting: Concept, classification and resulting landforms	SG	Sep	3
GEO-DC-MJ-101B Geotectonics (PRACTICAL) (01(Practical) (01)	Module: -1: Map Scale	i) Concept of Map scale	PD (upto Conversation)	Sep-Oct	5
		ii) Scale Conversion			
		iii) Construction of plain and comparative linear scale	ST	Sep-Oct	5
	Module: -2: Identification of Minerals & Rocks	i) Concept of Minerals	PG	Sep-Oct	5
		ii) Concept of Rocks			
		iii) Megascopic identification of Minerals (quartz, chalcopyrite, galena, calcite, mica, and talc) and Rocks (Sandstone, shale, basalt, granite, gneiss, marble, quartzite and conglomerate).	SG	Sep-Oct	5
	Module: -3: Understanding of Geological Map	i) Concept and importance of Geological map	SP	Sep-Oct	6
		ii) Construction of Geological Section (with given dip and direction in Horizontal, uniclinal and folded structure).	DM		
		iii) Interpretation of the prepared geological section		Sep-Oct	3

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SEM-III (Major)

Course	Unit	Topic	Teacher	Period	Exp no of Class
GEO-DC-MJ-301A (Theory)					
GEO-DC-MJ-301A: CLIMATOLOGY (Theory)	Module: -1: Atmosphere, energy and temperature	i) Atmosphere: Origin, structure and composition ii) Energy and Temperature in the Atmosphere: Insolation, heat budget, iii) Horizontal and vertical distribution of temperature; iv) Inversion of temperature- concept, types, causes and consequences.	ST	July - Aug	3 2 2 1
	Module: -2: Stability, Cloud development and precipitation	i) Atmospheric stability and instability ii) condensation, and precipitation-processes and forms; iii) Mechanisms of precipitation-Bergeron-Findeisen theory, and collision and coalescence theory.	SP	July-Aug	1 3 2
	Module: -3: Atmospheric Circulation and climatic classification	i) Pressure belts and Planetary winds, jet streams ii) Indian monsoon: mechanisms (Thermal Engine theory and Jet Stream Theory) and impacts iii) Ocean- atmosphere interaction (El-Nino, La-Nina, ENSO, MJO). iv) Climatic classification: Basis and scheme after Köppen and Thornthwaite (1931 &1948).	PD PG	July - Aug	3 2 3 3
	Module: -4: Weather Disturbances	i) Air mass: Concept, origin and classification; ii) Fronts- frontogenesis and frontolysis, typology, and associated weather conditions. iii) Cyclone: Origin, characteristics, and impacts (tropical and mid-latitude cyclones), Super cyclones in Bay of Bengal (Aila and Amphan).	DM SG	August	2 2 4
GEO-DC-MJ-301B CLIMATOLOGY	Module -1: Measurement of weather elements by meteorological instruments	i) Hygrometer ii) Maximum-minimum thermometer iii) Fortin's barometer iv) Rain gauge (Simon's), v) Anemometer and wind vane	SP DM DM	Aug-Sep	2 2 2

(PRACTICAL) (01)					4
	Module -2: Preparation of climatic graphs and charts	i) Taylor's Climograph, and Hythergraph ii) Star Diagram iii) Ergograph iv) Synoptic station model	SG PD PD PG	Aug-Sep	2 2 2 2
	Module-3: Interpretation of Indian daily weather map	i) Pre-monsoon, Monsoon and Post-monsoon: Temperature, pressure, Sky condition, wind direction and speed, Sea condition and other weather phenomena.	ST	Aug-Sep	10
GEODC-MJ-302A (Theory)					
GEO-DC-MJ-302A: HUMAN GEOGRAPHY(Theory)	Module: -1: Introduction to Human Geography and	i) Nature, scope, approaches, elements, and recent trends. ii) Concept of space and society iii) Concept of race and ethnicity, evolution; major human races of the World (Huxley) and India (Guha & Risley).	SP PG	July - Aug	2 1 4
	Module: -2: Evolution of human societies and Culture	i) Hunting and food gathering, pastoral nomadism, subsistence farming, industrial and urban societies. ii) Culture: Concept and type iii) Cultural hearth and Cultural regions (language and religion).	ST	July - Aug	2 1 2
	Module: -3: Human adaptation to the environment	i) Eskimo, Masai ii) Gond, Toda, Jarawa, and Khasi.	DM	July - Aug	4
	Module: -4: Population–Resource Relationship & Human Development	i) Underpopulation, overpopulation, optimum population; population-resource region of the World (Ackerman) and India (P. Sen Gupta). ii) HDI, GDI and GII: Concept and measure	SG PD	Aug	2 3
GEO-DC-MJ-302B HUMAN GEOGRAPHY (Practical) (01)	Module: -1: Identification of human race	i) Cephalic Index ii) Nasal Index iii) Facial Index	DM SG	Aug-Sep	2 2
	Module: -2: Measures of spatial distribution and interaction	i) Population potential ii) Mean centre of population	ST SP	Aug-Sep	2 2
	Module: -3: Measures of Human Development	i) HDI (UNDP 2014) ii) GDI (UNDP 2014) iii) Gender Inequality Index (GII).	PD PG	Aug-Sep	2 2 2

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SEM-III

Paper Name: Basics of Cadastral Surveying (GEO-SEC- 03)

Course	Unit	Topic	Teacher	Period	Exp no of Class
Basics of Cadastral Surveying (GEO-SEC- 03)	Module 1: Introduction to Land and Land Records (20 Hours)	i) Concept of land and land revenue system: Definition and importance of land in the revenue system. ii) Classification and Nature of Land: Types of land and their characteristics. iii) Land Rights and Land Deed: Understanding ownership, tenure, and legal documentation. iv) Introduction to digital land record systems Integrated Land Record Management System (ILRMS)	ST SP	Nov-Dec Nov-Dec	5 5
	Module 2: Cadastral Maps and Their Uses (25 Hours)	i) Cadastral Map: Concept, Objectives, and Characteristics ii) Uses of Cadastral Maps: Applications in land management and dispute resolution. iii) Evolution of Cadastral Mapping in India: Historical development and reforms. iv) Types and Scale of Cadastral Maps: Different map types, their scales, and selection criteria	DM SG	Nov-Dec Nov-Dec	6 6
	Module 3: Cadastral Map Terminology and Mapping Methodology (25 Hours)	i) Key Terminology: Quadrilaterals, triangulation, J.L number, Plot number ii) Cadastral Mapping Methodology: Steps in map preparation., Assigning unique parcel IDs iii) Simple fieldwork: Identifying and marking control points, adjacent boundaries, and features	SG PG	Nov-Dec	7 8
	Module 4: Basic Surveying Methods (20 Hours)	i) Units of Measurement: Basic units of length and area, and their conversions. ii) Chain Surveying: Concept, types of chains, chaining lines, tie lines, offsets, and survey methods. iii) Plane Table Surveying: Principles, accessories, procedures, common errors, and precautions.	PG	Nov-Dec	8

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Semester-V (Major)

Course	Unit	Topic	Teacher	Period	Exp no of Class
Major Core (GEO-DC-MJ-501A)					
GEO-DC-MJ-501A: SOCIAL AND CULTURAL GEOGRAPHY (Theory) (03)	Module: -1: Introduction to social Geography and its elements	i. Social Geography: Concept, scope, content, approaches and evolution. ii. Social Elements: Class, caste, race, and ethnicity with special reference to India. iii. Concept and types of Society, social space, social groups and social processes.	DM	July-Aug	2 2 2
	Module: -2: Social wellbeing and issues in Social Geography	i. Social Well-being: Concept and Components. ii. Concept of Social inclusion and exclusion. iii. Social segregation in India (Urban and Rural) and Social Problems in India: dowry, child marriage, Domestic violence and crime.	ST	July-Aug	2 2 4
	Module: -3: Introduction to Cultural Geography and its elements	i. Cultural Geography: Meaning, scope, content and contemporary trends. ii. Culture: Concept and type (material and non-material) iii. Concept of cultural diffusion, cultural landscape, Cultural space, cultural region (India, after Sopher), Cultural Hearth and Realm, cultural diversity (India).	PD	July-Aug	2 2 4
	Module: -4: Issues in Cultural Geography	i. Language and major linguistic groups in India; Language extinction. ii. Religion: Major religious groups in World and India. iii. Cultural ecology, folk culture and rituals with special reference to West Bengal. iv.Concept of Globalization and cultural change	SG ST (iii) SG	Aug-Sep	2 2 3 2
GEO-DC-MJ-501B: SOCIAL AND CULTURAL GEOGRAPHY(Practical) (01)	Module-1: Social Indices	i. Human Poverty Index (HPI) ii. Gender Parity Index (GPI) iii. Social Affinity Index (SAI) iv. Social Segregation Indices: Dissimilarity Index (DI) & Isolation Index (II).	SP ST	Aug-Sep	2 2 2 2 2
	Module-2: Spatial representation of Sociocultural aspects	i. Preparation of cartogram (Bar diagram and Proportional Divided Circle) and thematic Map (Choropleth) of India using socio-cultural data (caste, religion and language).	DM SG	Aug-Sep	6

	Module-3: Framing of questionnaire & Schedule	i. Preparation of a questionnaire and Schedule regarding socio-economic status and access to basic amenities and services in rural or urban areas	PD	Aug -Sep	4
Major Core (GEO-DC-MJ-502A)					
GEO-DC-MJ-502A: FUNDAMENTALS OF SURVEYING AND MAPPING (Theory) (03)	Module-1: Principles and techniques of surveying	i) Surveying: definition, classification, and applications; Principles: plane and geodetic surveying, Bearing and triangulation. ii) Techniques of surveying by Plane table, Prismatic compass, theodolite. iii)Concept and importance of topographic survey.	SP (Prismatic compass)	Sep	6
	Module-2: Principles and techniques of Levelling and contouring	i) Levelling: Concept, principles, types, procedure, and applications; techniques of levelling by Dumpy level, Abney level, and Clinometer. ii) Concept of contours and their topographic representation; methods and techniques of contouring.	PG	Sep	6
	Module-3: Fundamentals of Mapping	i) Cartography: Nature, scope and development, elements and applications. ii) Map: Concept, components, classification, Importance and uses. iii)Thematic Mapping: Concept, Significance, types and applications in spatial analysis.	DM ST	Sep Sep	3 3
	Module-4: Geodetic framework and map projection	i) Coordinate systems: Polar, Grid, rectangular and Geographic Coordinate system ii) Shape of earth: Spheroid, Ellipsoid, Geoid and Datum (Everest and WGS84) 36 iii) Map projection: Concept, Classification, properties and uses; Concept and significance of UTM projection.	SG	Sep	6
GEO-DC-MJ-502A: FUNDAMENTALS OF SURVEYING AND MAPPING (Practical) (01)	Module-1: Bearing conversion and Prismatic Compass	i) Conversion of Bearing (Between Whole Circle Bearing and Quadrantile/Reduced Bearing). ii) Traverse survey using Prismatic Compass (closed traverse) and Plane table (Intersection method).	SP	Sep_ Oct	6
	Module-2: Dumpy Level and Theodolite	i) Levelling by Dumpy Level and plotting of profile (Collimation and Rise & Fall method); ii) Determination of Height of objects using Transit Theodolite (Base Accessible and base	PG PD	Sep-oct	4 4

		Inaccessible with same vertical plane) (Using stadia method and One degree method).		Sep-oct	
	Module-3: Cartographic Techniques and Map Projections	i) Thematic Mapping (state/district/sub-district level Map of India) using choropleth technique ii) Construction of Projections (Mathematical): Polar Zenithal stereographic projection, Polyconic projection and Mercator's Projection.	ST SG	Sep-Oct Sep-Oct	4 4
Major Core (GEO-DC-MJ-503A)					
GEO-DC-MJ-503A: QUANTITATIVE TECHNIQUES IN GEOGRAPHY (Theory) (03)	Module-1: Basics of Quantitative Techniques in Geography	i. Importance and significance of quantitative techniques in geographical studies; concepts of data, parameter, constant, variable, population and sample. ii. Types of geographical data: discrete & continuous, spatial & non-spatial, cross-sectional & time-series; Sources of data: primary and secondary. iii. Scales of measurement: nominal, ordinal, interval, ratio. iv. Data organization: tabulation, frequency distribution, cross-tabulation	SP PG	Oct-Nov Oct-Nov	4 4
	Module-2: Descriptive Statistics: Central Tendency and Dispersion	i. Measures of central tendency and partition value: concept, merits, demerits and uses. ii. Measures of dispersion: concept, merits, demerits and uses.	DM SG	Oct-Nov	4 4
	Module-3: Correlation, Regression and Time Series Analysis	i. Correlation: Product moment (Pearson's) and rank correlation (Spearman). ii. Linear regression: concept, regression equation, interpretation of coefficients and standard error of estimate. iii. Time series analysis: concept, methods and applications.	ST	Oct-Nov	7
	Module-4: Basics of Probability	i. Introduction to Probability: Basic terms: experiment, outcome, event, sample space; Simple event operations: union, intersection, complement. ii. Basic Rules of Probability: Addition, Multiplication, Conditional Probability.	PD	Oct-Nov	7
GEO-DC-MJ-503A: QUANTITATIVE TECHNIQUES IN	Module-1: Descriptive Statistics: Central Tendency and Dispersion	i) Measures of central tendency: mean (arithmetic mean), median, mode (Calculation and Graphical Plotting). ii) Measures of dispersion: Quartile deviation, mean deviation, standard deviation and Coefficient of variation	DM SG	Nov Nov	4 4

GEOGRAPHY(Practical) (01)	Module-2: Correlation, Regression and Time Series Analysis	i) Correlation: Product moment correlation (Pearson's) ii) Linear regression: Linear Regression Equation of Y on X. iii) Time series analysis: Semi-average and moving average method.	ST PG	Nov Nov	4 4
	Module-3: Basics of Probability	i) Event Operations: Union, intersection, and complement of events using Venn diagrams. ii) Probability Calculation: Addition Rule for mutually exclusive and nonexclusive events, Multiplication Rule for independent and dependent events, Conditional Probability	PD	Nov	5
Major Core (GEO-DC-MJ-504A)					
GEO-DC-MJ-504A: ECONOMIC AND POLITICAL GEOGRAPHY (Theory) (03)	Module-1: Basics of Economic Geography	i) Economic Geography: Meaning and approaches. ii) Basic concepts: Goods, services, production, exchange and consumption. iii) Resource: Concept, nature, classification, creating factors and conservation.	PD	No-Dec	4
	Module-2: Economic Sectors and Theories of Industrial Location	i) Economic activities: Concept and classification. ii) Primary activities: Agriculture (paddy, jute & tea), forestry (lumbering), fishing (inland and coastal of India) and mining (coal, iron ore in India). iii) Secondary and Tertiary activities: Manufacturing (cotton textile and iron & steel); transport network connectivity and accessibility, transportation and economic development (Golden quadrilateral, PMGSY, Freight corridor). iv) Theories of industrial location: Least cost theory (Weber) & Profit maximisation theory (Losch).	SG DM SP PD	Nov-Dec Nov-Dec Nov-Dec	2 4 4 4
	Module-3: Fundamentals of Political Geography	i) Political Geography: Definition, nature and scope. ii) Basic concepts: State, Buffer state, Nation and Nation-State, Frontiers, Boundaries, Enclave and exclave	PG	Nov-Dec	4
	Module-4: Geopolitics and Contemporary Geopolitical Issues	i) Geopolitics and geopolitical theories: Concepts of geopolitics, theory of Heartland and Rimland. ii) Contemporary geopolitical issues: Water (Indus water treaty, Kaveri water dispute);	ST	Nov-Dec	4

		Geostrategic importance and vulnerability of Siliguri Corridor			
GEO-DC-MJ-504A: ECONOMIC AND POLITICAL GEOGRAPHY (Practical) (01)	Module-1: Measures of Agricultural efficiency and concentration	i) Kendall's Ranking Co-efficient. ii) Crop Combination by Weaver. iii)Dominant and Distinctive Analysis.	PG PD SP	Dec	5
	Module-2: Measures of Transport network connectivity and accessibility	i) Alpha, Beta and Gamma index. ii) Shimbel Index and Konig Number.	SG DM	Dec	5
	Module-3: Measuring Democracy, Governance, and Political Behaviour	i) Index of democracy. ii) Index of autocracy. iii) Happiness Index. iv) Measuring voting behaviour	ST PD	Dec	4 4

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Semester-VII (Major)

Course	Unit	Topic	Teacher	Period	Exp no of Class
Major Core (GEO-DC-MJ-701A)					
GEO-DC-MJ-701A: HYDROLOGY & OCEANOGRAPHY (Theory) (03)	Module: -1: Fundamentals of Hydrology: Surface and Subsurface Processes	i) Hydrology: Definition, Hydrological Cycle, Characteristics, Significance, Global Hydrological Cycles and World Water Resources ii) Hydro-Atmospheric Processes: Definitions, Characteristics and Determining Factors of Precipitation, Evaporation, and Evapotranspiration iii) Surface Hydrology: Surface Runoff, Rainfall–Runoff Relationship iv) Subsurface Hydrology: Aquifer	PG	July-Aug	2 2 2
	Module: -2: River Basin Hydrology and Watershed Management	i) River Regime and Flood Hydrology: Seasonal flow patterns, flood estimation techniques (Rational Method, empirical formula, Flood frequency analysis), hydrograph analysis, and their applications ii) Human Impacts on Channel Hydro-morphology: Influence of dams, embankments, irrigation canals, and artificial channel diversions on river form and flow iii) Micro Watershed Planning and Integrated River Basin Management: Definition, delineation, conservation strategies, and principles of holistic river basin management.	PG	July-Aug	2 2 4
	Module: -3: Ocean Basin Morphology and Physical Oceanography	i) Ocean Structure and Morphological Features: Origin, Characteristics, and Classification of Major Structural and Morphological Features of the Ocean Basins ii) Bottom Topography: Configuration of the Indian, Atlantic, and Pacific Ocean Basins iii) Physical Properties of Ocean Water: Distribution of Temperature, Salinity, and Density; Factors Influencing Vertical and Horizontal Variability iv) Ocean Circulation: Surface Ocean Currents, Gyres, Thermohaline (Deep Ocean) Circulation, and their Climatic Significance.	DM	July-Aug	2 2 4

	Module: -4: Ocean Sediments & Coral Reef systems	i) Oceanic Sediments: Origin and Classification, Marine Resources. ii) Coral Reefs and Atolls: Evolutionary Theories (After Darwin and W. M. Davis), Environmental Factors Affecting Reef Growth, Classification and Types of Coral Reefs, Coral Bleaching.	SP	Aug -Sep	2 2 3 2
GEO-DC-MJ-501B: HYDROLOGY & OCEANOGRAPHY (Practical) (01)	Module: -1: Hydrological Estimation Techniques	i) Preparation of Water Budget Graph ii) Estimation of Evapotranspiration (Blaney-Criddle) iii) Runoff Estimation: Surface Runoff -Empirical Methods (Rational Method); Subsurface: Darcy's Law, Base Flow Estimation (Graphical Method) iv) Rainfall & Runoff Analysis: Construction of Rainfall Hyetograph and Annual Hydrograph	PG	Aug -Sep	2 2 2 2
	Module2: Streamflow Measurement	i) Computation of Discharge from Field Data: Velocity–Area Method: Slope–Area Method ii) Construction of Rating Curve iii) Estimation of Flood Peak (Dickens, and Inglis)	SP	Aug -Sep	6
	Module 3: Oceanographic Data Representation and Analysis	i) Isotherm and Isohaline Mapping ii) Preparation of Temperature–Salinity (T-S) Diagram	DM	Aug -Sep	4
Major Core (GEO-DC-MJ-702A)					
GEO-DC-MJ-502A: SETTLEMENT GEOGRAPHY (Theory) (03)	Module-1: Fundamentals of Settlement Geography	i) Definition, scope and contents of Settlement Geography. ii) Site, situation and ecological determinants of settlements. iii) Morphogenesis of house types.	SG	Sep	6
	Module-2: Rural Settlements: Concepts, Patterns, and Evolution	i) Concept of Rural Settlement and Ekistics. ii) Rural House Types: Forms and Functional Basis of Classification in India Bases of Classification, Pattern, Hierarchy, Rural-Urban Continuum, Segregation with Special Reference to India iii) Theories of Evolution: Bylund, Hudson and Green.	SG	Sep	6
	Module-3: Urban Settlements: Urbanization, Hierarchy, and Morphological Models	i) Urbanization: Definition of Urban Settlements; Urbanism and Urbanization in the World and India. ii) Urban Hierarchy: Functional and Technological (Taylor and Huston, Mumford); Theory of Christaller and Losch. iii) Morphology: Types, Structure and Theories (Concentric Zone theory, Sector theory, Multiple Nuclei Theory, Bid Rent Theory (Alonso)	ST	Sep Sep	3 3

	Module-4: Urban Issues, Planning & Development Programmes	i) Urban issues: Solid waste (Kolkata), Air Quality (Delhi), Water Crisis (Chennai), Housing & Slums (Mumbai), urban crime and geriatric population in Metropolitan cities of India. ii) Urban renewal programmes: JNNURM, AMRUT and Smart Cities Mission. iii) Urban Regeneration Processes with Special Reference to India. iv) Urban Development through Master Plans: Case Study of Chandigarh and Delhi.	ST	Sep	6
GEO-DC-MJ-502A: SETTLEMENT GEOGRAPHY (Practical) (01)	Module-1: Classification of Settlement	i) Rank-Size Rule by G. K. Zipf (Log Scale) and B.J.L. Berry. ii) Nelson's method of town classification. iii) Functional classification of Towns using Ternary diagram (Ashok Mitra).	SG	Sep_ Oct	6
	Module-2: Measurement of growth, spacing	i) Measurement of spacing of settlements: Nearest Neighbour Index, Spacing index (Mather's model, 1944). ii) Growth of Urban Population and Index of Urbanization. iii) Typological classification of rural settlement from SOI Topo-sheets.	ST	Sep-oct Sep-oct	4 4
	Module-3: Mapping of Urban Sprawl and urban environment	i) Urban Sprawl mapping: Onscreen digitization and NDBI. ii) Air quality (PM-2.5 and PM-10) mapping using IDW interpolation, Noise Pollution Assessment: Mapping of Noise Hotspots using IDW interpolation and Buffer Analysis.	SP	Sep-Oct Sep-Oct	4 4
Major Core (GEO-DC-MJ-703A)					
GEO-DC-MJ-503A: GEOGRAPHY OF HEALTH AND WELL-BEING (Theory) (03)	Module: -1: Introduction to Health Geography	i) Concept, nature and scope of geography of health and wellbeing; Concept of health, well-being, disease, illness (morbidity), mortality, public health, hygiene, and epidemiology. ii) Factors affecting human health and diseases: Physical, social, economic and environmental; Data sources of health statistics (NFHS, LASI, WHO, World Bank, MoHFW). iii) Health and Nutrition: Meaning, nutritional status (Stunting, wasting, Underweight	PD	Oct-Nov Oct-Nov	4 4
	Module: -2: Health risks and diseases	i) Classification of disease; Characteristics of major communicable, non-communicable and lifestyle diseases; Regional pattern of health and disease in India with special reference to Malaria, Tuberculosis, Diabetes, COPD, Cancer.	PD	Oct-Nov	4 4

		ii) Exposure and health risks: Air, water and plastic pollution, Household and municipal waste. iii) Environment and health; Climate change and associate health risk: Concept of heat stress, heat stroke.			
	Module: -3: Health and well-Being	i) Well-Being: Definition, scope, nature; factors influencing human well-being. ii) Approaches and indicators of well-being (Physical, mental, Social, and Economic). iii) WHO programmes on health and well-being.	DM	Oct-Nov	7
	Module: -4: Health care system and policies in India	i) Health infrastructure, Health care systems (Public and Private) and disparity in healthcare provision in India, ii) Indigenous health systems, Role of AYUSH in healthcare system. iii) National health schemes and policies in India since independence and SDG-3 (Good Health and Wellbeing).	SG	Oct-Nov	7
GEO-DC-MJ-503A: GEOGRAPHY OF HEALTH AND WELL-BEING (Practical) (01)	Module: -1: Measures of Morbidity and Mortality	i) Measures of Morbidity: Incidence rate and prevalence rate. ii) Measures of Mortality: Case Fatality Rate, Cause specific mortality Rate	DM	Nov Nov	4 4
	Module: -2: Measurement of Nutritional status	i) Body Mass Index (BMI), Measurement of Stunting, Wasting and Obesity (WHO Standard), Anthropometric measurement. ii) Physical Quality of Life Index (PQLI).	PD	Nov Nov	4 4
	Module: -3: Mapping of Health and diseases	i) Thematic Mapping of disease incidence and health facilities using health statistics: NFHS, Census, SRS, HMIS. ii) Mapping of Health infrastructure and facilities using Composite Index (Z-Score).	PD	Nov	5
Major Core (GEO-DC-MJ-704A)					
GEO-DC-MJ-504A: RESEARCH METHODOLOGY (Theory) (03)	Module-1: Fundamentals of Research Methodology	i) Understanding Research: Meaning, nature, scope and objectives. ii) Research Types: descriptive-analytical, pure-applied, conceptual-empirical, qualitative-quantitative. iii) Types of research methods: Comparative, Historical, Experimental, Survey, Case study, Ethnographic.	SP	No-Dec	4

	Module-2: Research Planning, Proposal Development, and Design	i) Literature Review: Sources of literature, purpose, methods, and organization of literature surveys. ii) Identification of research gap; Selection of research objectives. iii) Research Question and Design: Designing research questions (specific, measurable, relevant); Characteristics of good research design; Types of research design: Exploratory, Descriptive, Experimental, Correlational, Longitudinal, Cross-sectional. iv) Formulating a Research Proposal: Meaning, importance, and elements of a research proposal; Defining research problem; Developing hypotheses.	SP	Nov -Dec Nov -Dec Nov -Dec	2 4 4 4
	Module-3: Data Collection Methods and research approaches	i) Data: Concept, types and sources. ii) Techniques and Methods of data collection: Sampling- concept and types; Questionnaire and Schedule, Focus Group Discussion (FGD), Participant Observation and case study. iii) Research approaches: Qualitative, quantitative and mixed method.	SG	Nov -Dec	4
	Module-4: Research Writing, AI, and Publication Ethics	i) Principles of research writing: Intellectual honesty and research integrity; Steps for writing research papers; ii) Artificial Intelligence in Research and Academic Writing: Concept, scope, application and limitations. iii) Citation and referencing: Concept, needs, referencing style (MLA, APA, Chicago, Harvard), foot note, text note, end note, bibliography, annotated bibliography. iv) Research and Publication Ethics: Concept and issues; Publication Misconduct: Types, Reasons and Consequences. Plagiarism: Concept, types and importance of detection.	ST PG	Nov -Dec	4
GEO-DC-MJ-504A: RESEARCH METHODOLOGY (Practical) (01)	Module-1: Multivariate Statistical Techniques and Matrix Applications	i) Matrix operations: addition, multiplication, transposition, inverse ii) Determinants and Cramer's Rule. iii) Estimation and interpretation of Multiple and Partial Correlation Coefficients. iv) Multiple Linear Regression.	SP PG	Dec	5
	Module-2: Formulation and Testing of Hypothesis	i) Parametric Test: F-test, Analysis of variance (One Way and Two way).	ST	Dec	5

		ii) Non-Parametric Test: Kolmogorov–Smirnov Test.			
	Module-3: Data handling and presentation using MS-Excel	i) Descriptive Statistics, Correlation matrix, Regression, ANOVA (One Way and Two Way), Time Series Analysis (Moving Average Method). ii) Scatter Diagram, Box Plot, Histogram, Radar Diagram.	SP	Dec	4 4

Note: ST= Dr. Syfujjaman Tarafder, SP= Satyajit Paul, PD= Prabir Das, SG= Sanjay Ghosh, DM= Dipankar Majumder, PG= Paban Ghosh.