NETAJI SUBHAS OPEN UNIVERSITY
SCHOOL OF SCIENCES
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Undergraduate Geography Program (4-Year)
under National Curriculum & Credit Framework (NEP 2020)

Major Courses:

Semester	Major Course (DSC)	NEP Code	Total Credit/ Marks
I (Jul-Dec)	Cartographic Techniques & Survey Practical	DSC-1 (Practical)	4/ 50
II (Jan-Jun)	Geotectonics and Geomorphology	DSC-2	4/ 50
III (Jul-Dec)	Geotectonics and Geomorphology Practical & Climatology Practical	DSC-3 (Practical)	4/ 50
	Statistical Methods in Geography Practical & Human Geography Practical	DSC-4 (Practical)	4/ 50
IV (Jan-Jun)	Human Geography	DSC-5	4/ 50
	Climatology	DSC-6	4/ 50
	Environment Geography	DSC-7	4/ 50
V (Jul-Dec)	Remote Sensing, GIS Practical	DSC-8 (Practical)	4/ 50
	Disaster Management Practical & Environment Geography Practical	DSC-9 (Practical)	4/ 50
	Hydrology and Oceanography	DSC-10	4/ 50
	Economic Geography	DSC-11	4/ 50
VI (Jan-Jun)	Evolution of Geographical Thought	DSC-12	4/ 50
	Geography of India	DSC-13	4/ 50
	Soil & Bio Geography	DSC-14	4/ 50
	Social Geography	DSC-15	4/ 50
VII (Jul-Dec)	Regional Planning and Development	DSC-16	4/ 50
	Research Methodology and Field work Practical	DSC-17 (Practical)	4/ 50
	Population Geography	DSC-18 /#18A	4/ 50
VIII (Jan-Jun)	Urban Geography	DSC-19 / #19A	4/ 50
	Remote sensing	DSC-20 / #20A	4/ 50
	Settlement Geography	DSC-18A	4/ 50
	Political Geography	DSC-#19A	4/ 50
	Research Methods	DSC- #20A	4/ 50

Minor (24/32) (DSE Papers)	NEP Code	Total Credit/ Marks
DSE-1 - Climate Change: Vulnerability and Adaptations	DSE-1	4/ 50
DSE-2 - Disaster Management	DSE-2	4/ 50
DSE-3 - Rural Development	DSE-3	4/ 50
DSE-4 - Geography of Tourism	DSE-4	4/ 50

Other Courses	NEP Code	Total Credit/ Marks
SEC 1: Application of Remote Sensing & GIS	SEC-1	4/ 50
SEC 2: EIA & EMP	SEC-2	4/ 50
SEC 3: Recent Methods in Geography	SEC-3	4/ 50
MDC 1: Disaster Mitigation and Management	MDC-1	4/ 50

UG Geography Syllabus of NEP Major Courses

Major Course	*Details of Syllabus*
DSC-1: Cartographic Techniques *Practical*	***Module-1: Cartographic Techniques Practical*** **Units:** 1. Concept of Scales and maps 2. Linear Scale & its construction 3. Diagonal scale and its construction 4. Vernier scale and its construction 5. Map projections & their construction: Polar Zenithal Stereographic, Simple conic with one standard parallel, Bonne's, Cylindrical Equal Area and Mercator's 6. Diagrammatic representation of data: Line & Bar 7. Representation of point data: Isopleths 8. Representation of area data: Dots & Choropleth 9. Principles and construction of Proportional Squares 10. Principles and construction of Proportional Pie diagrams 11. Principles, construction and drawing of Dots and Spheres **Module-2: Thematic Mapping and Surveying *Practical*** **Units:** 12. Traverse survey using Prismatic Compass 13. Levelling using Dumpy Level 14. Contouring using Dumpy Level and Prismatic Compass 15. Abney's Level: Principles and use Viva-voce based on laboratory notebook (5 Marks)
DSC-2 : Geotectonics & Geomorphology	***Module-1: Geotectonics*** **Units:** 1. Scope and contents . Concept of Scale. Feedback concept 2. Earth's tectonic and structural evolution with reference to geological time scale 3. Earth's interior with special reference to seismology 4. Isostasy: Models of Airy and Pratt 5. Plate Tectonics: Processes at constructive, conservative, destructive margins and hotspots; resulting landforms 6. Folds and Faults—origin and types **Module-2: Geomorphology** **Units:** 7. Degradation processes: Weathering and mass wasting and resultant landform 8. Processes of entrainment, transportation and deposition by different geomorphic agents. Role of humans in landform development. 9. Development of river network and Channel pattern 10. landforms on Uniclinal and Folded structures 11. Landforms on igneous rocks with special reference to Granite and Basalt 12. Karst landforms: Surface and sub-surface 13. Glacial and Fluvio-glacial processes and landforms 14. Aeolian and Fluvio-aeolian processes and landforms 15. Models on landscape evolution: Views of Davis, Penck, King and Hack

DSC-3 : Geotectonics and Geomorphology Lab & Climatology *Practical*	***Module-1: Geotectonics and Geomorphology Practical*** **Units:** Extraction and interpretation of geomorphic information from Survey of India 1:50k 1. Topographical maps of plateau region: Delineation of drainage basin from Survey of India topographical map 2. Construction and interpretation of relief profiles (superimposed, projected and composite) 3. Relative relief map, Average Slope map (Wentworth) 4. Correlation between physical and cultural features from Survey of India topographical maps using transect chart 5. Construction of hypsometric curve from Survey of India 1:50k topographical maps of plateau region 6. Megascopic identification of *Mineral samples:* Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline 7. Megascopic identification of *Rock samples:* Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble 8. Measurement of dip and strike using Clinometer 9. Preparation and interpretation of simple Geological Maps (Horizontal, Uniclinal and Simple Anticline & Synclinal Fold Structure) ***Module-2: Climatology Practical*** **Units:** 10. Measurement of weather elements using analogue instruments: Mean daily temperature, Air pressure 11. Interpretation of a Daily Weather Map of India (any two): Pre-Monsoon, Monsoon and Post-Monsoon 12. Construction and interpretation of Climograph (G. Taylor) 13. Construction and interpretation of Wind Rose 14. Construction and interpretation of Climatic Chart 15. Construction and interpretation of Ombrothermic Chart Viva-voce based on laboratory notebook (5 Marks)
DSC-4: Statistical Methods in Geography Lab & Human Geography *Practical*	***Module-1: Statistical Methods: Basics*** **Units:** 1. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio), sources of data, Collection of data and formation of statistical tables 2. Theoretical distribution: frequency, cumulative frequency 3. Sampling : Need, types, significance and methods of random sampling 4. Central tendency: Mean, median, mode, partition values 5. Measures of dispersion: Mean Deviation, Standard Deviation, Coefficient of Variation 6. Association and correlation: Rank correlation, Product moment correlation 7. Linear Regression 8. Time Series Analysis (Moving Average) 9. Construction of data matrix with each row representing an aerial unit (districts / Modules / mouzas / towns) and columns representing relevant attributes

	10. Based on the above, a frequency table would be computed and interpreted 11. Measures of Central Tendency 12. Measures of Dispersion 13. Histograms and Frequency Curve would be prepared on the dataset. 14. Based on of the sample set and using two relevant attributes, a scatter diagram and regression line would be plotted 15. Drawing of Time Series Graph & Trend Line by Moving Average Method Viva-voce based on laboratory notebook (5 Marks)
DSC-5: **Human Geography**	***Module-1: Nature and Principles*** **Units:** 1. Nature, scope and recent trends of Human Geography 2. Elements of Human Geography 3. Approaches to the study of Human Geography; Resource, Locational, Landscape, Environmental 4. Evolution of humans 5. Concept of race and ethnicity 6. Space, society and cultural regions 7. Language and religion **Module-2: Society, Demography and Ekistics** **Units:** 8. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, industrial and urban societies 9. Human adaptation to environment: Eskimo, Masai, Jarwa, Gaddi, Santhals. 10. Population growth and distribution, population composition; demographic transition model 11. Population–Resource regions (Ackerman) 12. Human population and environment with special reference to development–environment conflict 13. Social morphology and rural house types in India 14. Types and patterns of rural settlements 15. Types and patterns of urban settlements
DSC-6: **Climatology**	***Module-1: Elements of Atmosphere*** **Units:** 1. Nature, Composition and Layering of the atmosphere 2. Insolation: controlling factors 3. Heat budget of the atmosphere 4. Temperature: Horizontal and Vertical distribution. Inversion of Temperature 5. Greenhouse Effect 6. Importance of Ozone layer ***Module-2: Atmospheric Phenomena and Climatic Classification*** **Units:** 7. Condensation: Process and forms. 8. Mechanism of Precipitation: Bergeron-Findeisen theory, Collision and Coalescence Theory. Forms of Precipitation 9. Air mass: Origin and Characteristics 10. Fronts: Warm and Cold; frontogenesis and frontolysis 11. Weather: Stability and Instability 12. Circulation in the atmosphere: Planetary winds, Jet Stream

	13. Tropical Cyclones and Mid-latitude Cyclones 14. Monsoon Circulation and Mechanism with reference to India 15. Climatic Classification after Köppen and Thornthwaite
SC-7: Environment Geography	***Module-1: Concept and Nature*** **Units:** 1. Geographers' approach to environmental studies 2. Perception of environment in different stages of civilization 3. Concept of holistic environment 4. System approach in Environment Geography 5. Ecosystem: Concept, structure and functions 6. Wetland ecosystem with special reference to East Kolkata Wetlands 7. Environmental pollution and degradation: Land, Water and Air 8. Space–time hierarchy of environmental problems: Local, regional and global **Module-2: Principles and Management** **Units:** 9. Urban environmental issues with special reference to Waste Management Rural environmental issues: Special reference to Sanitation and Public health 10. Environmental policies – Club of Rome, Earth Summits (special reference to Stockholm, Rio, Johannesburg) 11. Global initiatives for environmental management (special reference to Montreal, Kyoto, Paris) 12. Environmental Impact Assessment and Environmental Management Planning 13. Overview of principal environment-related regulations of India. Review of their achievements 14. Principles of Wasteland management with special reference to West Bengal 15. Principles of forest management with special reference to West Bengal
DSC-8: Remote Sensing, GIS *Practical*	***Module-1: Remote Sensing & GIS Practical*** **Units:** 1. Principles of Remote Sensing (RS) 2. Types of RS satellites and sensors 3. Sensor resolutions and their applications 4. Preparation of False Colour Composites from IRS LISS-3 5. False Colour Composites Landsat TM data 6. Principles of image interpretation 7. Preparation of inventories of landuse land cover (LULC) features from satellite images 8. GIS data structures: types (spatial and non-spatial) 9. Raster and vector data 10. Principles of GNSS positioning and waypoint collection 11. Area and length calculations from GNSS data 12. Georeferencing of maps and images 13. Image classification, post-classification analysis and class editing 14. Digitisation, Data attachment, overlay and preparation of thematic map 15. Collection and Plotting of Waypoint by GPS Viva-voce based on laboratory notebook (5 Marks)

DSC-9: Disaster Management Practical & Environment Geography *Practical*	***Module-1: Disaster Management Practical*** **Units:** An individual Project Report based on any one case study among the following disasters incorporating a preparedness plan in the vicinity of the candidate's institution or residence: 1. Thunderstorm 2. Landslide 3. Flood 4. Coastal 5. Riverbank erosion 6. Fire 7. Industrial accident 8. Structural collapse ***Module-2: Environment Geography Practical*** **Units:** 9. Preparation of questionnaire for perception survey on environmental problems 10. Preparation of check-list for Environmental Impact Assessment of an urban / industrial project 11. Quality assessment of soil using field kit: pH and NPK 12. Determination of soil type by ternary diagram textural plotting 13. Time series analysis of biogeography data 14. Interpretation of air quality using CPCB 15. Air quality using WBPCB data Viva-voce based on laboratory notebook (5 Marks)
DSC-10: Hydrology & Oceanography	***Module-1: Hydrology*** **Units:** 1. Global hydrological cycle: Its physical and biological role 2. Run off: Controlling factors. Run off cycle 3. Infiltration and Evapotranspiration 4. Drainage basin as a hydrological unit 5. Principles of water harvesting 6. Watershed management 7. Groundwater: Occurrence and storage; Factors controlling recharge, discharge; and Groundwater movement ***Module-2: Oceanography*** **Units:** 8. Major relief features of the ocean floor: Characteristics and origin according to plate tectonics 9. Water mass: Physical and Chemical properties of ocean water, T–S diagram 10. Ocean Temperature and Salinity: Distribution and Determinants 11. Air-Sea interactions, Ocean circulation 12. Wave and Tide 13. Coral Reefs: Formation, Classification and Threats 14. Marine resources: Classification and Sustainable utilisation 15. Sea Level Change: Types and Causes
DSC- 11: Economic Geography	***Module-1: Concept and Nature*** **Units:** 1. Meaning and approaches to Economic Geography, new Economic Geography

	2. Concepts in Economic Geography: Goods and services, production, exchange and consumption 3. Concept of economic man 4. Economic distance and transport costs ***Module-2: Economic Activity*** **Units:** 5. Concept and classification of economic activities 6. Factors affecting location of economic activity with special reference to agriculture (Von Thunen), 7. Locational Analysis of industry (Weber) 8. Primary activities: Subsistence and commercial agriculture, forestry, fishing and mining 9. Secondary activities: Manufacturing (cotton textile, iron and steel), 10. Concept of manufacturing regions 11. Special Economic Zones and technology parks 12. Tertiary activities: transport, trade and services 13. Agricultural systems: Case studies of tea plantation in India and Mixed farming in Europe 14. Transnational sea-routes, railways and highways with reference to India 15. International agreements and trade blocs: WTO and OPEC
DSC-12: Evolution of Geographical Thought	***Module-1: Nature of Pre Modern Geography*** **Units:** 1. Development of Geography and contributions of Greek, Chinese, and Indian geographers 2. Impact of 'Dark Age' on Geography 3. Transition from Cosmography to Scientific Geography (Contributions of Bernard Varenius and Immanuel Kant) 4. Dualism and Dichotomies (General vs. Particular, Physical vs. Human, Regional vs. Systematic, Determinism vs. Possibilism, Ideographic vs. Nomeothetic) 5. Man-Environment Relationship 6. Ecological Approach 7. Cultural Landscape, Cultural Diffusion ***Module-2: Foundations of Modern Geography & Recent Trends*** **Units:** 8. Evolution of Geographical thoughts in Germany, France, Britain and United States of America 9. Contributions of Humboldt and Ritter 10. Contributions of Richthofen, Hettner and Ratzel 11. Trends of Geography in the post World War-II period 12. System approach in Geographical Thoughts 13. Quantitative Revolution and its impact 14. Positivism, behaviouralism, radicalism, feminism 15. Towards Post Modernism: Changing concept of space in geography. Geography in the 21st Century

DSC-13: Geography of India	***Module-1: Geography of India*** **Units:** 1. Structure; Relief of India, physiographic divisions (S.P.Chatterjee) 2. Climate of India, Mechanism of monsoon 3. Soils of India: Classification, characteristics and distribution 4. Vegetation: Characteristics and broad classification 5. Population: Distribution, growth, structure and policy 6. Distribution of population by race, caste, tribes, religion, language 7. Agricultural regions (Randhawa & ICAR). Green revolution and its consequences 8. Mineral and power resources distribution and utilisation of iron ore, coal, petroleum, natural gas 9. Industrial development: Automobile and Information technology 10. Regionalisation of India: Physiographic ***Module-2: Geography of West Bengal*** **Units:** 11. Physical perspectives: Physiographic divisions. 12. Forests of West Bengal. Classification and characteristics, Water resources of West Bengal-economic and environmental perspectives 13. Population: Growth, distribution and human development 14. Resources: Mining, agriculture and industries 15. Regional Problem: Darjeeling Hills and Sundarban
DSC-14: *Soil & Bio Geography*	***Module-1: Soil Geography*** **Units:** 1. Factors or soil formation. Man as an active agent of soil transformation 2. Soil profile- development of soil horizons 3. Origin and profile characteristics of Lateritic, Podzol, Chernozem soil 4. Definition and significance of soil properties: Texture, structure and moisture 5. Definition and significance of soil properties: pH, organic matter and NPK 6. Soil erosion and degradation: Factors, processes and mitigation measures 7. Principles of soil classification: Genetic and USDA 8. Concept of land capability and its classification ***Module-2: Bio Geography*** **Units:** 9. Concepts of biosphere, ecosystem, biome, ecotone, community and ecology 10. Concepts of trophic structure, food chain and food web 11. Energy flow in ecosystems, Law of Thermodynamics 12. Geographical extent and characteristic features of: Tropical rain forest, Taiga and Grassland biomes 13. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen 14. Deforestation: Causes, consequences and management 15. Bio-diversity: Definition, types, threats and conservation measures
DSC-15: Social Geography	***Module-1: Concept and Nature*** **Units:** 1. Social Geography: Concept, Origin, Nature and Scope 2. Concept of Space 3. Social differentiation and stratification 4. Social processes 5. Social Categories: Caste, Class, Tribe, Race, Ethnicity, Language, Religion and

	their Spatial distribution 6. Basis of Social region formation; Evolution of social-cultural regions of India 7. Peopling Process of India: Technology and Occupational Change; Migration 8. Social Groups, Social Behaviour 9. Contemporary social environmental issues with special reference to India ***Module-2: Social Dynamics*** **Units:** 10. Concept of Social Wellbeing, Quality of Life 11. Measures of Social Wellbeing: Healthcare, Education, Housing, Gender Disparity 12. Social Geographies of Inclusion and Exclusion; Slums, Gated Communities 13. Social Planning, Planning in India 14. Social Policy, Social Welfare in India 15. Five Year Plans in India
DSC-16: Regional Planning and Development	***Module-1: Regional Planning*** **Units:** 1. Concept of regions: Types of regions and their delineation 2. Types of planning, principles and objectives of regional planning 3. Multi- level planning in India 4. Tools and techniques of regional planning 5. Metropolitan concept: metropolitan areas, and urban agglomerations ***Module-2: Regional Development*** **Units:** 6. Development: Meaning, growth versus development 7. Concept and strategies of regional development with reference to India 8. Theories and models for regional development: Growth pole model of Perroux; growth centre model in Indian context 9. Theories and models for regional development: Cumulative causation (Myrdal) and core periphery (Hirschman, Rostow and Friedman) 10. Changing concept of development, concept of underdevelopment 11. Indicators of development: Economic, social and environmental. 12. Human development 13. Regional development in India, regional inequality 14. Regional disparity and diversity 15. Need and measures for balanced development in India
DSC-17: Research Methodology and Field work Practical	***Module-1: Research Methodology Practical*** **Units:** 1. Definition and significance of research, importance of research 2. Research methods and methodology 3. Data processing and Tabulation from sample data collected 4. Matrix Scoring 5. Hypothesis testing- Chi-square 6. Hypothesis testing Z-score 7. Measures of co-relation of sample data-Scatter diagram, Product moment Formula 8. Standard deviation and co-efficient of variation 9. Data Analysis and report writing 10. Referencing and Bibliography ***Field Work Practical***

	Units: 11. Framing of Questionnaire and schedule 12. Field study Guidelines 13. Pilot Study 14. Transects and Quadrants determination -macro and micro levels, during field survey 15. Preparation of field map- Cadestral survey maps/ GPS based map/ free hand prepation of map of survey area Use of survey instruments for physical data generation ▪ Each student will prepare an individual report based on primary data collected from field survey and secondary data collected from different sources for either a rural area (mouza) or an urban area (municipal ward) based on cadastral or municipal maps to study specific problems. ▪ The duration of the field work shall not exceed 10 days ▪ The report should be hand written in English on A4 size paper in candidate's own words within 5,000 to 8,000 words excluding figures, tables, photographs, maps, references and appendices ▪ A copy of the bound report, duly signed by the concerned teacher, should be submitted Viva-voce based on laboratory notebook (5 Marks)
DSC-18 /#18A: Population Geography	***Module-1: Population Dynamics*** **Units:** 1. Development of Population Geography as a field of specialization. Relation between population geography and demography. Sources of population data 2. Population distribution: density and growth. Classical and modern theories in population growth, Demographic transition model 3. World patterns determinants of population distribution and growth. Concept of optimum population 4. Population distribution, density and growth profile in India ***Module-2: Demographic Attributes and Issues*** **Units:** 5. Population Composition and Characteristics– Age-Sex Composition 6. Measurements of fertility and mortality 7. Population composition of India. Occupational structure, Literacy Composition 8. Migration: Causes and types 9. National and international patterns of migration with reference to India. 10. Population and development: population-resource regions. 11. Concept of human development index and its components 12. Population policies in developed and developing countries. India & population policies 13. Population and environment, implication for the future 14. Contemporary Issues – Ageing of Population; Declining Sex Ratio 15. Population and Environment dichotomy
DSC-19 / #19A (4)- Urban Geography	***Module-1: Concept and Nature*** **Units:** 1. Urban Geography: nature and scope, different approaches and recent trends in urban geography 2. Origin of urban places in Ancient, Medieval, Modern and Post-Modern periods-factors, stages, and characteristics

	3. Theories of Urban Evolution and Growth: Hydraulic Theory, Economic Theory 4. Aspects of urban places: Location, site and situation, Size and Spacing of Cities 5. The Rank Size Rule, The Law of the Primate City 6. Urban Hierarchies: Central Place Theory by Christaller 7. August Losch's theory of Market Centres 8. Patterns of Urbanisation in Developed and Developing countries ***Module-2: Urban Issues*** **Units:** 9. Ecological processes of urban growth; Urban fringe; City- Region 10. Theories of city structure: Concentric Zone Theory, Sector Theory, Multiple Nuclei 11. Urban Issues: problems of housing, slums, civic amenities (water and transport) 12. Patterns and trends of urbanization in India 13. Process and Policies on urbanization 14. Urban change/landscape in post-liberalized period in India 15. Case studies of Delhi, Kolkata, and Chandigarh with reference to land use
DSC-20 / #20A (4)- Remote sensing	**Units:** 1. Principles of Remote Sensing (RS) 2. Classification of RS satellites 3. RS sensors 4. Sensor resolutions 5. Applications of sensor resolutions with reference to IRS and LANDSAT missions 6. Image referencing schemes 7. RS data acquisition 8. Standard False Colour Composites 9. Preparation of False Colour Composites from IRS LISS-3 and LANDSAT TM and OLI data 10. Principles of image rectification 11. Image enhancement 12. Principles of image interpretation 13. Feature extraction from satellite image 14. Preparation of inventories of land use and land cover features from satellite images 15. Guidelines for a project report based on the above themes (A project file consisting of four exercises on the above themes is to be submitted)
Major 18A: Settlement Geography	**Units:** 1. Settlement geography: definitions, nature and scope 2. Settlement types and their characteristics 3. Factors influencing growth and distribution of settlements 4. Evolution of rural settlements 5. Site and situation of settlements 6. Classification of rural settlements on the basis of population, patterns and functions 7. Structure of house and building materials in India 8. Regional variations in rural settlement patterns in India 9. Evolution of urban settlements 10. Classification of urban settlements 11. Hierarchy of urban Settlement: rank size rule and primate city 12. Urbanisation in India: Trends, pattern and process

	13. Morphology of urban settlements 14. Urban problems in Indian cities 15. Smart city: Concept, need and implementation in India
Major 19A: Political Geography	**Units:** 1. Nature, scope and approaches of political geography 2. Concept of core–periphery 3. Concept of nation, nation-state, state 4. Concept of borders, boundaries, frontiers 5. Concept of buffer-zones, buffer state 6. Concept of landlocked states 7. Heartland Theory 8. Rimland theory 9. Federalism 10. Regional integration 11. Post-colonialism in India 12. Cold-war 13. Disintegration of Soviet Union and East Europe 14. Shift from bi-polar to multi-polar world 15. BRICS
Major 20A: Research Methods	**Units:** 1. Geographic Enquiry: Definition and Ethics 2. Literature Review 3. Research Design 4. Research Problem and framing questions 5. Objectives and Methodology 6.Hypothesis 7.Data inventories, Questionnaire and schedule 8.Observation-Participant, non-participant 9.Data Collection: Type and Sources of Data; Methods of data Collection 10.Tabulation of data 11.Editing of data 12. Data Analysis: Qualitative and Quantitative Analysis 13. Techniques for representation of data 14. Structure of a Research Report: Title, Abstracts, Keywords, Text, Citation, Notes 15. Reference and Bibliography

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Syllabus of Geography Minor Courses (DSE)

Minor Course	*Details of Syllabus*
DSE 1: ***Climate Change: Vulnerability and Adaptations***	**Units:** 1. The Science of Climate Change: Origin, scope and trends 2. Understanding Climate Change with reference to the Geological Time Scale 3. Evidences and factors of climate change 4. The nature- man dichotomy of climate change 5. Green House Gases 6. Global Warming 7. Global climatic assessment: IPCC reports 8. Climate change and vulnerability: Physical; economic and social 9. Impact of Climate Change: Agriculture and Water; Flora and Fauna 10. Impact of Climate Change on Human Health and morbidity 11. Global initiatives to climate change mitigation: Kyoto Protocol, Carbon trading 12. Clean development mechanism, COP, Climate fund 13. National Action Plan (of India) on Climate Change 14. Role of Local Bodies on climate change mitigation 15. Awareness and action programmes on climate change
DSE 2: Disaster Management	**Units:** 1. Definition and Concepts of Hazards and Disasters 2. Risk and Vulnerability; Classification of hazards 3. Causes and consequences of hazards: Physical, economic and cultural 4. Role of National and International organizations in disaster management 5. Causes, Impact and Distribution of: Earthquake and Tsunami 6. Causes, Impact and Distribution of Landslides and management with reference to India 7. Causes, Impact, Distribution of: Flood and drought 8. Causes, Impact, Distribution of: Deforestation, Desertification, Salinization 9. Response and Mitigation to Disasters: Institutional set up, NDMA and NIDM 10. Indigenous Knowledge and Community-based Disaster Management; Do's and Don'ts During and Post Disasters 11. Emerging approaches to Disaster management: (a) Pre-disaster stage, (b) Emergency Stage and (c) Post disaster stage 12. Regional perspectives of hazards in India with reference to dimension, causes, consequences in Hills 13. Coastal hazards Causes, consequences and management 14. National and international policies for disaster management 15. Role of geospatial technology (RS and GIS) in disaster management
DSE 3: Rural Development	**Units:** 1. Defining Development: Inter-Dependence of Urban and Rural Sectors of the Economy 2. Paradigms of Rural Development: Lewis Model of Economic Development, 'Big Push' theory of Development, Myrdal's thesis of Spread and Backwash Effects 3. Need for Rural Development, Gandhian Approach to Rural Development 4. Rural Economic Base: Agriculture and Allied Sectors, Non-Farm Activities 5. Rural Co-operatives and Agricultural marketing 6. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY 7. Target Group Approach to Rural Development: SJSY, MNREGA, Jan DhanYojana

	8. Provision of Services – Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro credit ; Concept of PURA 9. Rural Governance: Panchayati Raj System 10. Rural Development Policies 11. Rural Development Programmes in India 12. Rural Infrastructural Development programmes relating to: Rural Electrification, Transport, Housing, and Connectivity 13. Rural Development Programmes for Women and children: Janani SurakshaYojana 14. National Nutrition Mission, Drinking water and sanitation programmes 15. NRHM, Sarva Sikha Mission
DSE 4: Geography of Tourism	***Module-1:*** **Units:** 1. Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations 2. Geographical Parameters of Tourism by Robinson 3. Types of Tourism: Ecotourism, Cultural Tourism, Adventure Tourism, Medical Tourism, Pilgrimage, International, National 4. Factors influencing tourism: historical, natural, socio-cultural and economic 5. Spatial pattern of tourism: Domestic and International 6. Areal and locational dimensions comprising physical, cultural, historical and economic dimension of tourism 7. Impact of tourism: physical, economic, social and perceptive positive and negative impacts 8. Environmental laws and tourism - current trends, spatial patterns and recent changes 9. Role of foreign capital and impact of globalization on tourism 10. Recent Trends of Tourism: International and Regional, Domestic (India); Sustainable Tourism 11. Meeting Incentives Conventions and Exhibitions (MICE) 12. Tourism in India: Tourism Infrastructure; Regional dimensions of tourist attraction; Case Studies of Dal lake, Goa, Garhwal Himalaya, Desert and Coastal Areas 13. Promotion of Tourism-National Tourism Policy 14. Infrastructure and support system-accommodation and supplementary accommodation; other facilities and amenities 15. Tourism circuits-short and longer detraction - Agencies and intermediaries - Indian hotel industry

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Syllabus of Geography (SEC & MDC Courses)

SEC Course	*Details of Syllabus*
***SEC-1:* Application of Remote Sensing & GIS**	**Units:** 1. Principles of Remote Sensing (RS) 2. Classification of Remote Sensing satellites 3. Remote Sensing sensors: Sensor resolutions 4. Applications of sensor resolutions with reference to IRS and LANDSAT missions 5. Image referencing schemes; Remote Sensing data acquisition 6. Standard False Colour Composites 7. Preparation of False Colour Composites from IRS LISS-3 and LANDSAT TM and OLI data 8. Principles of image rectification; Image enhancement 9. Principles of image interpretation 10. Feature extraction from satellite image 11. Preparation of inventories of land use and land cover features from satellite images 12. Concept, components of GIS 13. Functions of GIS 14. Application of RS and GIS 15. RS and GIS software and their uses in preparing a project report.
SEC 2: EIA & EMP	**Units:** 1. Definition and scope of Environmental Impact Assessment (EIA) 2. Concept of Environmental Management Planning (EMP) 3. Legal and Policy Framework for Management: Air, Water, Forest. 4. Structure of governance and implementation strategies 5. Stages of conducting EIA using Environmental Information System (EIS) 6. Preparation of inventory and matrices 7. Methodologies for EIA: Impact assessment, risk assessment 8. Concept of cost-benefit analysis of EIA 9. Stakeholders' participation: Local bodies, citizens, relevant experts 10. Prediction scenarios and mitigation, alternatives 11. Environmental Impact (EI) reporting 12. EI monitoring and review 13. Environmental audit: Relevance and process 14. EIA/EMP case study of a metro rail project with reference to India 15. EIA/EMP case study of a National Highway project with reference to India
SEC 3: Recent Methods in Geography	**Units:** 1. Designing of primary survey based on research problems 2. Relevance of pilot survey 3. Sampling types and strategy 4. Preparation of questionnaire and interview schedule 5. Data compilation; Field data entry; tabulation of data 6. Statistical analysis of data: frequency distribution, measures of central tendency and dispersion 7. Use of minor survey instruments and applications 8. Mapping and extraction of flooded areas from satellite images and digital elevation models 9. Mapping of areal and linear extents of riverbank shift from Survey of India 1:50,000 maps and/or satellite images 10. Application of Pie Diagram

	11. Application of Choropleth Mapping 12. Dominant and distinctive functions 13. Ternary diagram showing occupational patterns (after Ashok Mitra) 14. Preparation of accessibility map 15. Preparation of flowchart
MDC Course	***Details of Syllabus***
MDC: Disaster Mitigation and Management ***(Except Geography students)***	**Units:** 1. Definition and Concepts of Hazards and Disasters 2. Classification of hazards; Concept of Risk and Vulnerability 3. Causes and consequences of hazards: Physical, economic and cultural 4. Causes and Impact of Earthquake 5. Causes, Impact of Landslides and management 6. Causes and Impact of Flood and drought 7. Causes and Impact of Deforestation, Desertification 8. Response and Mitigation to Disasters: NDMA and NIDM 9. Role of National and International organizations in disaster management 10. Emerging approaches to Disaster management: (a) Pre-disaster stage, (b) Emergency Stage and (c) Post-disaster stage 11. Indigenous Knowledge and Community-based Disaster Management; Do's and Don'ts Pre, During and Post Disasters phase 12. Regional perspectives of hazards in India with reference to causes, consequences in Hills 13. Coastal hazards: causes, consequences and management 14. National policies for disaster management 15. Role of geospatial technology (RS and GIS) in disaster management

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