**GEOGRAPHY DEPARTMENT**

**RAMAKRISHNA SARADA MISSION VIVEKANANDA VIDYABHAVAN**

**LESSON PLAN FOR SEMESTER – I, 2024**

**NEP SYLLABUS**

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| **GEODSC101T – PHYSICAL GEOGRAPHY ✧**  **UNIT WISE DIVISION** |
| THEORY : 3 Credits [45 hours of teaching]  **Unit I : Geotectonics and Geomorphology**  AP - 1. Internal Structure of Earth based on Seismic Evidence. …………………………………………………2  SM - 2. Influence of lithology on landforms: Granite and Basaltic landforms. …………………………..2  ND - 3. Factors controlling landform development; endogenetic and exogenetic forces. …………2.  KD - 4. Evolution of landforms under fluvial process. ………………………………………………………………..4  KD - 5. Nature and classification of hazards in Indian context. …………………………………………………..2  **Unit II : Climatology, Soil and Biogeography**  AP - 6. Nature, composition and layering of the atmosphere. ……………………………………………………3  AP - 7. Distribution of pressure belts and planetary wind system, jet streams, and index cycle…8  ND - 8. Factors of soil formation. ………………………………………………………………………………………………..3  ND - 9. Evolution of an ideal soil profile. ……………………………………………………………………………………2  KD - 10. Concept of ecosystem — basic ecological principles, ecotone, communities, niche, succession, and habitat. ……………………………………………………………………………………………………………..4.  SM - 11. Concept of Biomes : study of Tropical rainforest, Taiga, Tundra, Desert, Savannah, and Temperate grasslands. …………………………………………………………………………………………………………………7   * Remedial class. …………………………………………………………………………………………………………………3 * Class test. …………………………………………………………………………..…………………………………………….2 * Internal exam. ……………………………………………………………………..……………………………………………1   TOTAL=45  PRACTICAL : 2 Credits [60 hours of teaching]  AP - 1. Graphical construction of linear scales : Plain. ……………………………………………………………....10  AP - 2. Altimetric frequency distribution; Demarcation of broad physiographic zones. …………….10  KD - 3. Denoting drainage, geomorphic, settlement and transport attributes using sketches………………………………………………………………………………………………………………………………………..15  KD - 4. Identification of drainage and channel patterns from Survey of India 1:50,000 topographical maps. …………………………………………………………………………………………………………………....10  AP - 5. Construction and interpretation of the wind rose diagram. ……………………….…………………..5   * Class test. …………………………………………………………………………………………………..……………………. 4 * Internal exam. ………………………………………………………………………………..………………………………...1 * Remedial class. ………………………………………………………………………………….……………………………..5   TOTAL=60  **GEOSE-01M – Remote Sensing ✧**  **UNIT WISE DIVISION**  THEORY : 3 Credits [45 hours of teaching]  ND - 1. Principles of Remote Sensing (RS) : Classification of RS satellites & sensors. ……………..10  ND - 2. Sensor resolutions and their applications with reference to IRS and Landsat missions, image referencing schemes and data acquisition. ……………………………………………………………………….10  MH - 3. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data. Principles of image rectification and enhancement. ……………………………………….…………………………..12  MH - 4. Principles of image interpretation and feature extraction. Preparation of inventories of land use land cover features from satellite images. …………………………………………….…………………….10.   * Class test. ……………………………………………………………………………………………………….…………………2 * Internal exam. ………………………………………...………………………………………………………………………..1   TOTAL=45 |

**SEMESTER – 3**

**GEOTECTONICS & GEOMORPHOLOGY**

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| **Unit I : Geotectonics**  **KD - 1. Earth’s tectonic and structural evolution with reference to Geological time scale with special reference to the events of the Pleistocene………………………………………………………………5**  **SM - 2. Theory of Isostasy : Models of Airy and Pratt and their applicability……………………………………………………………...3**  **AP - 3. Plate Tectonics as a unified theory of global tectonics : Processes and landforms at plate margins and hotspots……………4**  **ND - 4. Folds and Faults—Formation and Classification. ……………6**  **Unit II : Geomorphology**  **SM - 5. Degradational processes: Weathering, mass wasting and resultant landforms …………………………………………………...5**  **ND - 6. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults. …………………….6**  **KD - 7. Coastal processes and landforms. ……………………………..3**  **SM - 8. Glacial and glacio-fluvial processes and landforms. ………….3**  **AP - 9. Aeolian and fluvial-aeolian processes and landforms. ……….3**  **AP - 10. Models on landscape evolution: Views of Davis, Penck and Hack. …………………………………………………………………….5**  **Remedial teaching. …………………………………………………………………………….2**  **TOTAL = 45**  **PRACTICAL**  **SM - 1. Megascopic identification of -**  **(a) Mineral samples : Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; ………..5**  **(b) Rock samples : Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble. ……………………………………………………………………5**  **ND - 2. Interpretation of geological maps with unconformity and intrusions on uniclinal and folded structures. ………………………...8**  **SM - 3. Reference scheme of Survey of India Everest and Open Series Maps; Map margin information. Extraction & interpretation of geomorphic information from Survey of India 1:50,000 topographical maps of plateau region : Construction and interpretation of relief profiles (serial, superimposed, projected and composite). ………….10**  **ND - 4. Determination of channel sinuosity index (channel length/valley length measured through straight line) and braiding index of rivers from topographical maps (c. 10-km reach). …………8**  **AP - 5. Drainage basin delineation, stream ordering (Strahler) on the delineated drainage basin. …………………………………………….8**  **AP - 6. Morphometric analysis : Preparation of Relative Relief (Smith), Average Slope (Wentworth) and Drainage Density (Horton) on a delineated drainage basin. …………………………………………….8**  **AP - 7. Construction of hypsometric curves and derivation of hypsometric integers of a drainage basin of a plateau region. ……..8**  **TOTAL = 60** |

**LESSON PLAN FOR SEMESTER – V - 2024**

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| **UNIT WISE DIVISION**  **CC - 11 : Research methodology & Field Work (THEORY)** |
| **UNIT-I (RESEARCH METHODOLOGY)**  **ND -1. Research in geography : Meaning & Concept ……………………..1**  **Types of Research ………………………………………………………………………….1**  **Objectives & significance. ………………………………………………………..…..1**  **ND - 2. Literature review :**  **Concept, objectives & significance …………………………………………..…..1**  **Types of Literature Review ………………………………………………………..…1**  **Formulation of research design :**  **Concept, objectives & importance of Research Design. ………..……….1**  **Characteristics of Research Design. ………………………………………….…..2**  **Steps in Research Design. ………………………………………………………..…..1**  **Errors in Research Design. ………………………………………………………..…..1**  **SM - 3. Defining research problems & its importance …………..…..…1**  **Types of Research Problem ……………………………………………………….…1**  **Concept of Research objectives ……………………………………………….….1**  **How to write research objectives ……………………………………………….1**  **Developing a hypothesis. ……………………………………………………………1**  **Characteristics, types, source, function ………………………………………1**  **MC - 4. Research materials and methods :**  **How to collect Research material …………………………………………..…..1**  **Sources of Research material ………………………………………………………1**  **Types of Research methods. ……………………………………………………….1**  **SM - 5.Techniques of writing scientific reports :**  **Preparing notes ………………………………………………………………………..…1**  **References …………………………………………………………………………………...1**  **Bibliography ……………………………………………………………………………..….1**  **Abstract ………………………………………………………………………………….…..1**  **Keywords……………………………………………………………………………………..1**  **UNIT-II (FIELD WORK)**  **MC - 6.Fieldwork in geographical studies:**  **Role & significance. ……………………………………………………………..…..…..1**  **Selection of study area & objectives. …………………………………..…..….2**  **Pre- field academic preparations. ………………………………………..…..….2**  **Ethics of fieldwork. ………………………………………………………………….....2**  **AP - 7.Field techniques and tools :**  **Observation (participant, non- participant) …………………………………2**  **Questionnaires (open, closed, structured, non-structured) ……….…2**  **Interview. ……………………………………………………………………………………2**  **AP - 8.Field techniques & tools :**  **Landscape survey using transects ………………………………………….….…2**  **Landscape survey using Quadrants ……………………………………….….…2**  **Construction of sketches, photo and video recording . ……………….3**  **KD - 9.Positioning and collection of samples. ………………………………3**  **Preparation of inventory from field data. ………………………………..…3**  **KD - 10.Post-field tabulation - Types …………………………………….…..…1**  **Data processing and evaluation ………………………………………………….2**  **Analysis of quantitative and qualitative data. ……………………….….…2**   * **Remedial class. …………………………………………………………………3** * **Class test & Internal exam. ……………………………………………….2**   **PRACTICAL - (AP & ND)**  **Socioeconomic data collection…………………………………..………………..10**  **Preparation of Maps ……………………………………………………..……………14**  **Interpretation …………………………………………………………………………….…6**  **TOTAL = 90** |
| **CC12 : REMOTE SENSING & GIS (THEORY)**  **Unit I: Remote Sensing**  **KD - 1. Principles of Remote Sensing (RS): Types of RS satellites and sensors. ……………………………………………………………………………………….…6**  **KD - 2. Sensor resolutions and their applications with reference to IRS and Landsat missions. ……………………………………….………………………6**  **ND - 3. Remedial class. …………………………………………………………..….…..1**  **SM - 4. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data. ………………………………………………………………4**  **SM - 5. a) Principles of image correction and interpretation. ………...4**  **b) Preparation of inventories of land use land cover (LULC) features from satellite images. ……………………………………………………….4**  **SM - 6. Remedial class. ……………………………………………………………….….1**  **Unit II: GIS & Global Navigation Satellite System**  **AP - 7. Concept of GIS and its applicability. GIS data structures: types: spatial and non-spatial, raster & vector. ………………………….….8**  **AP - 8. Principles of preparing attribute tables and data manipulation and overlay analysis. ……………………………………….…….…4**  **AP - 9. Remedial class. ………………………………………………….………………..1**  **SM - 10. Principles of GNSS positioning and waypoint collection.…6**  **SM - 11. Transferring waypoints to GIS. Area and length calculation from GNSS data. ………………………………………….………………………………..6**   * **Remedial class. ………………………………………………….…………….…1** * **Class Test & Internal exam. …………………………………………….….3**   **.**  **PRACTICAL – (30 classes)**  **AP - 1. Georeferencing of maps and images using open source software. ……………………………………………………………………………………….7**  **SM - 2. Preparation of FCC and identification of features using standard FCC and other band combinations. ……………………….….……..8**  **AP - 3. Digitisation of features. Data attachment and preparation of annotated thematic maps (choropleth,pie chart & bar graphs).....10**   * **Remedial class. …………………………………………………………..………5**   **TOTAL = 90** |

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| **DSE1 : SOIL & BIOGEOGRAPHY**  **Soil Geography :**  **ND - 1. Factors of soil formation …………………………………………………..…3**  **Man as an active agent of soil transformation …………………………….……1**  **ND - 2. Soil Profile : concept & general characteristics ……………………..2**  **Soil forming processes ……………………………………………………….……….……2**  **Origin & Profile characteristics of Podzol ……………………………………..…..2**  **Origin & Profile characteristics of Laterite …………………………………………2**  **Origin & Profile characteristics of Chernozem ……………………………………2**  **SM - 3. Definition & significance of soil properties :**  **Texture : characteristics, role & significance ………………………………………2**  **Structure : characteristics, role & significance …………………………………..2**  **Moisture: characteristics, role & significance ………….………………………..2**  **SM - 4. Definition & significance of soil properties :**  **Soil PH : Role & significance …………………………………………………..….…….2**  **Organic Matter : Role & significance ……………………………………………...2**  **NPK : Role & significance ………………………………………………………………...2**  **AP - 5. Soil erosion & degradation : concept ……………………………………2**  **Factors & Processes of soil erosion ………………………………………..………...2**  **Consequences of soil erosion & its mitigation Measures. …………….…..2**  **Factors & Processes of soil degradation ……………………………………………2**  **Consequences of soil degradation & its mitigation Measures.……………2**  **AP - 6. Principles of soil classification : Genetic classification …………2**  **USDA classification ………………………………………………………………………….2**  **Concept of land capability & its classification. …………………………………..2**  **BIOGEOGRAPHY :**  **KD - 7. Concepts of biosphere, ecosystem …………………………………….…2**  **Concept of biome , ecotone ………………………………………………………………1**  **Concept of community, niche ……………………………………………………………1**  **Concept of succession and ecology. ……………………………………………………2**  **KD - 8. Concepts of trophic structure …………………………………………….…2**  **Food chain & food web. ………………………………………………………………….…2**  **Energy flow in ecosystems ………………………………………………………………..2**  **MC - 9. Concept of Biome & its characteristics …………………………….……1**  **Geographical extent & characteristics features of:**  **Tropical rainforest Biome ……………………………………………………………….…2**  **Taiga Biome ………………………………………………………………………………...….2**  **Grassland Biome ………………………………………………………………………………2**  **AP - 10. Biogeochemical cycles : concept and importance ………...…...1**  **CO2 cycle : process & importance …………………………………………………….1**  **Nitrogen : process & importance ………………………………………………………1**  **KD - 11. Spatial distribution of world fauna …………………………………..3**  **MC - 12. Measures of conservation of biodiversity in India …………….2**  **Man & Biosphere Program.. ……………………………………………..1**   * **Tutorial Classes : 5(AP) + 5(KD) + 3(SM) + 2(ND). …………………15** * **Remedial class. ………………………………………………………………………2** * **Class test & Internal exam. …………………………………………………….3**   **TOTAL = 90 CLASSES**  **GEOADSE 02T – SETTLEMENT GEOGRAPHY ✧**  **UNIT I : RURAL SETTLEMENT**  **KD - 1. Scope and content of Settlement Geography; rural, urban and peri-urban areas. ……………………………………………………..5**  **ND - 2. Rural Settlement : Definition, nature and characteristics…5**  **KD - 3. Morphology of rural settlements: site and situation, layout-internal & external…………………………………………….7**  **KD - 4. Rural house types with reference to India, Social segregation in rural areas; Census categories of rural settlements. …………….7**  **KD - 5. Problems and policies related to rural infrastructure with reference to India. …………………………………………………….7**  **UNIT II : URBAN SETTLEMENT**  **AP - 6. Urban Settlements: Census definition (Temporal) and categories in India. …………………………………………………..4**  **MH - 7. Urban morphology : Classical models : Burgess, Homer Hoyt, Harris and Ullman Metropolitan concept. …………………………..6**  **AP - 8. City-region and Conurbation, Functional classification of cities: Harris, Nelson and McKenzie. …………………………………………7**  **ND - 9. Aspects of urban places: Location, site and situation, Size and spacing of cities : the rank size rule, the law of the primate city. …..10**  **MH - 10. Urban hierarchies : Central Place Theory; August Löch’s theory of market centres. ……………………………………………..12**   * **Tutorial Classes : 5(AP) + 5(KD) + 3(SM) + 2(ND). …………………15** * **Remedial class. ………………………………………………………………………2** * **Class test & Internal exam. …………………………………………………….3**   **TOTAL = 90 CLASSES** |