**GEOGRAPHY DEPARTMENT**

**RAMAKRISHNA SARADA MISSION VIVEKANANDA VIDYABHAVAN**

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

**NEP SYLLABUS**

|  |
| --- |
| **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. …………………………………………………2SM - 2. Influence of lithology on landforms: Granite and Basaltic landforms. …………………………..2ND - 3. Factors controlling landform development; endogenetic and exogenetic forces. …………2.KD - 4. Evolution of landforms under fluvial process. ………………………………………………………………..4KD - 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. ……………………………………………………3AP - 7. Distribution of pressure belts and planetary wind system, jet streams, and index cycle…8 ND - 8. Factors of soil formation. ………………………………………………………………………………………………..3ND - 9. Evolution of an ideal soil profile. ……………………………………………………………………………………2KD - 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=45PRACTICAL : 2 Credits [60 hours of teaching]AP - 1. Graphical construction of linear scales : Plain. ……………………………………………………………....10AP - 2. Altimetric frequency distribution; Demarcation of broad physiographic zones. …………….10KD - 3. Denoting drainage, geomorphic, settlement and transport attributes using sketches………………………………………………………………………………………………………………………………………..15KD - 4. Identification of drainage and channel patterns from Survey of India 1:50,000 topographical maps. …………………………………………………………………………………………………………………....10AP - 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. ……………..10ND - 2. Sensor resolutions and their applications with reference to IRS and Landsat missions, image referencing schemes and data acquisition. ……………………………………………………………………….10MH - 3. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM and OLI data. Principles of image rectification and enhancement. ……………………………………….…………………………..12MH - 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**

|  |
| --- |
| **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**

|  |
| --- |
| **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**  |

|  |
| --- |
| **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** |