Structure and Detailed Syllabus

of the Undergraduate Course (B.Sc.) in Geography under CBCS

Department of Geography

Presidency University

Department of Geography
(Faculty of Natural and Mathematical Sciences)

Presidency University

Hindoo College (1817-1855), Presidency College (1855-2010)

86/1, College Street, Kolkata - 700 073

West Bengal, India
DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Semester-wise Course Structure and Module Compositions</td>
<td>3</td>
</tr>
<tr>
<td>B. Detailed Syllabus and Suggested Reading List for respective Modules</td>
<td>5 - 43</td>
</tr>
<tr>
<td>Geotectonics and Geomorphology</td>
<td>5</td>
</tr>
<tr>
<td>Cartographic Techniques and Computations</td>
<td>7</td>
</tr>
<tr>
<td>Geography of Tourism</td>
<td>9</td>
</tr>
<tr>
<td>Human Geography</td>
<td>10</td>
</tr>
<tr>
<td>Thematic Cartography and Surveying</td>
<td>12</td>
</tr>
<tr>
<td>Regional Development</td>
<td>14</td>
</tr>
<tr>
<td>Climatology</td>
<td>15</td>
</tr>
<tr>
<td>Statistical Methods in Geography</td>
<td>17</td>
</tr>
<tr>
<td>Regional Geography of India</td>
<td>19</td>
</tr>
<tr>
<td>Climate Change: Vulnerability and Adaptation</td>
<td>21</td>
</tr>
<tr>
<td>Geographical Information Systems</td>
<td>22</td>
</tr>
<tr>
<td>Economic Geography</td>
<td>23</td>
</tr>
<tr>
<td>Environmental Geography</td>
<td>25</td>
</tr>
<tr>
<td>Nature and Natural Disasters</td>
<td>27</td>
</tr>
<tr>
<td>Sustainable Development</td>
<td>29</td>
</tr>
<tr>
<td>Research Methods</td>
<td>30</td>
</tr>
<tr>
<td>Regional Planning and Development</td>
<td>31</td>
</tr>
<tr>
<td>Remote Sensing</td>
<td>33</td>
</tr>
<tr>
<td>Hydrology and Oceanography</td>
<td>34</td>
</tr>
<tr>
<td>Agricultural Geography</td>
<td>36</td>
</tr>
<tr>
<td>Evolution of Geographical Thought</td>
<td>38</td>
</tr>
<tr>
<td>Fieldwork</td>
<td>39</td>
</tr>
<tr>
<td>Soil Geography</td>
<td>40</td>
</tr>
<tr>
<td>Social and Political Geography</td>
<td>42</td>
</tr>
</tbody>
</table>
# Semester-wise Modules of the Undergraduate Course in Geography (Major) under CBCS
Department of Geography, Presidency University, Kolkata

<table>
<thead>
<tr>
<th>Semest er</th>
<th>Course Type</th>
<th>Core Course</th>
<th>Discipline Specific Elective (DSE) (4)</th>
<th>Generic Elective (GE) (4)</th>
<th>Skill Enhancement Course (SEC) (2)</th>
<th>Ability Enhancement Compulsory Course (AECC) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Core Course</td>
<td>Geotectonics and Geomorphology</td>
<td>Geography of Tourism</td>
<td>Cartographic Techniques and Computations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>Core Course</td>
<td>Human Geography</td>
<td>Regional Development</td>
<td>Thematic Cartography and Surveying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>Core Course</td>
<td>Climatology</td>
<td>Climate Change: Adaptation and Vulnerability</td>
<td>Statistical Methods in Geography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>Core Course</td>
<td>Economic Geography</td>
<td>Sustainable Development</td>
<td>Regional Geography of India</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth</td>
<td>Core Course</td>
<td>Regional Planning and Development</td>
<td>Hydrology and Oceanography</td>
<td>Environmental Geography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sixth</td>
<td>Core Course</td>
<td>Evolution of Geographical Thought</td>
<td>Soil Geography</td>
<td>Remote Sensing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Academic Session:** Each Semester shall contain at least 16 Teaching Weeks

Odd Semesters: Semesters One and Three - July to December
Even Semesters: Semesters Two and Four - January to June
# Credit Allocation and Marks Distribution for the Undergraduate Course in Geography (Major) under CBCS
## Department of Geography, Presidency University, Kolkata

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Type</th>
<th>Paper Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Theory</td>
<td>Practical</td>
</tr>
<tr>
<td>First</td>
<td>Core Course</td>
<td>GEOG01C1</td>
<td>Geotectonics and Geomorphology</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>First</td>
<td>Core Course</td>
<td>GEOG01C2</td>
<td>Cartographic Techniques and Computations</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>First</td>
<td>Generic Elective</td>
<td>GEOG01GE1</td>
<td>Geography of Tourism</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>First</td>
<td>Ability Enhancement Compulsory Course</td>
<td>(English / Hindi / MIL / Communication) / Environmental Science</td>
<td>4</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Second</td>
<td>Core Course</td>
<td>GEOG02C3</td>
<td>Human Geography</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Second</td>
<td>Core Course</td>
<td>GEOG02C4</td>
<td>Thematic Cartography and Surveying</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Second</td>
<td>Generic Elective</td>
<td>GEOG02GE2</td>
<td>Regional Development</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Second</td>
<td>Ability Enhancement Compulsory Course</td>
<td>(English / MIL / Communication) / Environmental Science</td>
<td>4</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Third</td>
<td>Core Course</td>
<td>GEOG03C5</td>
<td>Climatology</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Third</td>
<td>Core Course</td>
<td>GEOG03C6</td>
<td>Statistical Methods in Geography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Third</td>
<td>Core Course</td>
<td>GEOG03C7</td>
<td>Regional Geography of India</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Third</td>
<td>Generic Elective</td>
<td>GEOG03GE3</td>
<td>Climate Change: Adaptation and Vulnerability</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Third</td>
<td>Skill Enhancement Course</td>
<td>GEOG03SEC1</td>
<td>Geographical Information Systems</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fourth</td>
<td>Core Course</td>
<td>GEOG04C8</td>
<td>Economic Geography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>Core Course</td>
<td>GEOG04C9</td>
<td>Environmental Geography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>Core Course</td>
<td>GEOG04C10</td>
<td>Nature and Natural Disasters</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>Generic Elective</td>
<td>GEOG04GE4</td>
<td>Sustainable Development</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fourth</td>
<td>Skill Enhancement Course</td>
<td>GEOG04SEC2</td>
<td>Research Methods</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fifth</td>
<td>Core Course</td>
<td>GEOG05C11</td>
<td>Regional Planning and Development</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fifth</td>
<td>Core Course</td>
<td>GEOG05C12</td>
<td>Remote Sensing</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fifth</td>
<td>Discipline Specific Elective</td>
<td>GEOG05DSE1</td>
<td>Hydrology and Oceanography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fifth</td>
<td>Discipline Specific Elective</td>
<td>GEOG05DSE2</td>
<td>Agricultural Geography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Sixth</td>
<td>Core Course</td>
<td>GEOG06C13</td>
<td>Evolution of Geographical Thought</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Sixth</td>
<td>Core Course</td>
<td>GEOG06C14</td>
<td>Fieldwork</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Sixth</td>
<td>Discipline Specific Elective</td>
<td>GEOG06DSE3</td>
<td>Soil Geography</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Sixth</td>
<td>Discipline Specific Elective</td>
<td>GEOG06DSE4</td>
<td>Social and Political Geography</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Totals: 107 38 3 148 1970 570 60 2600
Detailed Syllabus for First Semester of Geography (Major) Undergraduate Course

Course Name: Geotectonics and Geomorphology  
Course Type: Core Course  
Course Code: GEOG01C1  
Credits: 6  
Total Marks: 100

Module Evaluation:  
Question Pattern  
Internal Assessment -

GEOG01C1 (Theory) [Credits: 4 Marks: 70]

Unit 1: Geotectonics  
1.1 Earth's tectonic, structural and biological evolution through geological timescales [2]  
1.2 Earth's interior from seismic measurements and tomography; Isostatic models of Airy and Pratt - adjustments and anomalies [5]  
1.3 Plate Tectonics: Wegener and Holmes, evidences from sea-floor spreading and palaeomagnetism; Plate interactions - Himalayas, Andes, Mid-Atlantic Ridge, East African Rift, Hawaiian Chain, San Andreas; Neotectonics evidences [10]  
1.4 Folds, Faults and Tilts - origin, classifications, topography and drainage [5]

Unit 2: Geomorphology  
2.1 Fundamental Concepts: Thornbury, Brunsden and others; Geomorphic timescales and landscape hierarchy; Geomorphic Systems - classification, thresholds and feedbacks; Morphogenetic regions of Peltier and Budel [4]  
2.2 Weathering processes: latitudinal variations in processes, rates and landforms; Supergene ores, placers and laterites [5]  
2.3 Mass movement: types and rates, landslide causation and mitigation [4]  
2.4 Models of landscape evolution: Davis, Penck and Hack; Slope models of Dalrymple, King and Young [5]  
2.5 Fluvial forms and processes: channel hydraulics and sediment entrainment; Base-level and Rejuvenation; Graded streams and Lane equation; Channel adjustments to tectonic, climatic and eustatic changes [10]  
2.6 Aeolian processes: desert and coastal dune systems and loess; Combating dune advancement [4]  
2.7 Coastal environments: cliffs, shore platforms and beach morphologies; Wave forms, longshore drift and rip current; Coastal erosion and near-shore reclamation; Sea-level rise threats [4]  
2.8 Glacial and periglacial environments: landforms; Glacial mass balance and movement; Pleistocene glaciation and world landforms; Climate change and glaciers [4]  
2.9 Anthropogenic geomorphology: roles of humans in landform development: Szabo's classification [2]

GEOG01C1 (Practical) [Credits: 2 Marks: 30]

Unit 1: Basic Geological Excercises  
1.1 Mineral and rock properties, formation and identificaiton of megascopic and microscopic specimens; Bowen's Reaction Series; Rocks and landforms - basalt, granite, limestone; Pebble shape measurement with slide callipers: Zinng's classification [32]  
1.2 Measurement of dip, strike and slopes with clinometer; Basic stratigraphic principles of outcrops [16]  
1.3 Landform-process interpretations from Google Earth and historical changes; Rosgen Channel Classification [8]  
1.4 Plotting seismic events and volcanic eruptions using USGS data in Google Earth, MS-Excel and custom software [8]
Suggested Readings: Geotectonics and Geomorphology

Detailed Syllabus for First Semester of Geography (Major) Undergraduate Course

Course Name: Cartographic Techniques and Computations
Course Type: Core Course
Course Code: GEOG01C2
Total Marks: 100

Course Evaluation:
Question Pattern -
Internal Assessment -

GEOG01C2 (Theory) [Credits: 4 Marks: 70]

Unit 1: Map Projections
1.1 Coordinate systems: Polar and rectangular; Concept of generating globe, geoid and oblate spheroid [2]
1.2 Bearing: Magnetic and true, whole-circle and reduced; Grids: angular and linear measurement methods [4]
1.3 Map projections: Classification, properties, deformations and uses [8]
1.4 Basic concepts: parallels, meridians, great circles, scale factor, orthodrome, loxodrome and geodesic [2]
1.5 Principles, Theories, Construction and Properties of select Map Projections:
   - Polar Zenithal Case (Gnomonic, Stereographic, Orthographic)
   - Conical Case (Simple Conical Projection with one Standard Parallel, Bonne's, Polyconic, International, Sinusoidal)
   - Cylindrical Case (Equal Area, Orthomorphic, Mercator, Gall)
   - Special Case (Molleweide); Combining projections and noting distortions using simple programs [14]
1.6 Concept, construction and significance of Universal Transverse Mercator projection [4]

Unit 2: Basic Mathematics for Cartography
2.1 Basic Algebra: Sets and Venn Diagrams; Progression and Series; Functions, Graphs and Equations [4]
2.2 Vector and Matrix Algebra: notations and computations; Minor and Co-factor Determinants, Matrix Inverse, Solving simultaneous equations using Matrix Inverse and Cramer's Rule [8]
2.3 Logarithms and Indices: Laws of Logarithm - solving equations and finding solution by experiments [6]
2.4 Fundamentals of Trigonometry: Trigonometric Ratios and Identities; Sum and difference of angles; Properties of Triangles [8]
2.5 Calculus: Differentiation of basic functions; Integration - basic relationships, area and volume [4]

GEOG01C2 (Practical) [Credits: 2 Marks: 30]

Unit 1: Scales and Topographical Maps
1.1 Graphical construction of scales: linear, comparative, diagonal and vernier [12]
1.2 Survey of India Topographical Map Analysis:
   - Reference scheme of Everest and Open Series Maps, Map margin information
   - Construction and interpretation of relief profiles (serial, superimposed, projected and composite)
   - Demarcating broad physiographic zones, drainage, geomorphic, settlement and transport attributes
   - Preparation of Relative Relief (Smith), Slope (Wentworth), Stream Frequency and Drainage Density (Horton);
     Ruggedness and Dissection Index maps
   - Drainage basin delineation, stream ordering (Strahler) and Horton’s Laws; Long Profiles and Basin Hypsometry
   - Correlation between physical and cultural features using transect chart [48]
Suggested Readings: Cartographic Techniques and Computations

Module Name: Geography of Tourism
Paper Code: GEOG01GE1
Total Marks: 100
Module Type: Generic Elective
Credits: 6

Module Evaluation:

Question Pattern -
Internal Assessment -

GEOG01GE1 (Theory) [Credits: 4    Marks: 70]
2. Infrastructure and support system - accommodation and supplementary accommodation; other facilities and amenities [8]
3. Types of Tourism: Ecotourism, Cultural Tourism, Adventure Tourism, Medical Tourism, Pilgrimage and Religious Tourism, Rural Tourism, Urban Tourism, Social Tourism; MICE as a Tourism product [24]
4. Impact of tourism: physical, economic and social and perceptive positive and negative impacts; Tourism-Climate interface and impacts of climate change on destinations [10]
5. Role of foreign capital and impact of globalization on tourism [4]
7. Recent Trends of Tourism: Sustainable Tourism, Slow Tourism, Gender embodiments [8]

GEOG01GE1 (Practical) [Credits: 2    Marks: 30]
1. Spatial pattern of tourism: Spatial affinity [14]
2. Tourism perception survey: Application of Likert Scale [20]
3. Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert and Coastal Areas [30]

Suggested Readings: Geography of Tourism
9. Department of Tourism (2002): National Tourism Policy, Ministry of Tourism and Culture, Govt. of India
DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

Detailed Syllabus for Second Semester of Geography (Major) Undergraduate Course

Course Name: Human Geography
Course Code: GEOG02C3
Course Type: Core Course
Total Marks: 100
Credits: 6

Course Evaluation:
Question Pattern -
Internal Assessment -

GEOG02C3 (Theory) [Credits: 5 Marks: 80]

Unit 1: Introduction to Human Geography
1.1 Nature, scope and recent trends; Approaches of Human Geography; From Human Geography to Humanistic Geography [6]
1.2 Race and Ethnic Groups: concept, origin, diffusion and distribution [6]
1.3 Language: origin, diffusion and distribution [6]
1.4 Man-environment relationship: Environmental determinism and possibilism [6]

Unit 2: Population and Migration
2.2 Theories of Population Growth: Malthus, Demographic Transition [5]
2.3 Determinants and patters of population growth and distribution [4]
2.4 Migration: Types, causes and consequences [5]
2.5 Theories of Migration: Lee and Ravenstein [5]

Unit 3: Geography of Rural Settlements
3.1 Site and situation; Types and patterns of rural settlements; Rural house types in India by geographical regions [5]
3.2 Morphology and segregation of rural settlements (Indian context) [4]
3.3 Hierarchy of rural settlements: Central Place Theory [5]

Unit 4: Geography of Urban Settlements
4.1 Origin and growth of urban settlements; Classification of urban settlements (C.D. Harris and Nelson) [6]
4.2 Concepts of Metropolis, Megalopolis, Connurbation, Primacy; Morphology of cities (Burgess, Hoyt, Harris-Ullman, Alonso Models) [6]
4.3 Third World Urbanisation: issues and challenges [5]

GEOG02C3 (Tutorial) [Credits: 1 Marks: 20]

Unit I: Presentation and Review
1.1 Literature review, book review, written assignment submission, and presentation on various topics [32]
Suggested Readings: Human Geography

Course Name: Thematic Cartography and Surveying  
Course Type: Core Course  
Course Code: GEOG02C4  
Total Credits: 6  
Total Marks: 100  

Question Pattern -  
Internal Assessment -  

GEOG02C4 (Theory) [Credits: 4  Marks: 70]

Unit 1: Surveying Techniques

1.1 Open and closed traverse survey using a Prismatic Compass with corrections [10]  
1.2 Profile line survey and Radial Contouring using a Dumpy Level [4]  
1.3 Determination of heights of objects with accessible and inaccessible base by Transit Theodolite - different cases [10]  
1.4 Distance measurements with a laser distance measure [2]  
1.5 Mensuration math formulae and applications [2]  

Unit 2: Thematic Mapping

2.1 Principal national agencies producing thematic maps in India: NATMO, GSI, NBSS & LUP, INHD and their Map Symbols [2]  
2.2 Diagrammatic representation of data:  
   Data representation by different graphs and charts (manual and using Microsoft Office Excel) [4]  
   Data representation by Maps: Proportional squares, pie diagrams with proportional circles, Dot and Sphere Choropleth and Isopleth maps, chorochromatic and choroschematic maps [4]  
2.4 Preparing Socio-economic maps; Questionnaire Schedule Preparation for assessment and perception study [6]  
2.5 Measures of Spatial Distribution: Nearest Neighbour Analysis and Joint Count Statistics, Rank-Size Rule (Zipf, Berry), Gravity and Potential Models [8]  
2.6 Combinational Analysis: Dominant Distinctive Function, Weaver’s Method of Crop Combination and Rafiullah’s Method of Critical Combination, Ternary Diagram [8]  

GEOG02C4 (Practical) [Credits: 2 Marks: 30]

Unit 1: Mapping Landscapes

1.1 Interpretation of geological maps with different lithologies, structures and discontinuities  
   Drawing of cross sections and mapping horizontal, vertical, uniclinal, folded and faulted structures [12]  
   Determining strike and dip attributes, bed succession and thickness [12]  
   Correlating topography with geologic structures [8]  
1.2 Study of one G.S.I. Quadrangle map [12]  
1.3 Geomorphological map symbols and map preparation [12]  
1.4 Land use and land cover map preparation (using mouza maps and Google Earth) [8]
Suggested Readings: *Thematic Cartography and Surveying*

Module Name: Regional Development

Paper Code: GEOG02GE2

Module Type: Generic Elective

Credits: 6

Total Marks: 100

Module Evaluation:

Question Pattern -

Internal Assessment -

GEOG02GE2 (Theory) [Credits: 4  Marks: 70]

1. Definition, Types and Evolution of Region; Need for Regional Planning [6]
2. Planning Region; Characteristics of an Ideal Planning Region; Delineation of planning region; Regionalization of India for Planning (Agro Ecological Zones) [10]
4. Growth Centre Model in Indian context; Village Cluster [6]
5. Problem Regions and Regional Planning: Backward Regions and Regional Plans- Special Area Development Plans in India; DVC-The Success Story and the Failures [12]
6. Regional Imbalance; Development and regional disparities in India since Independence: Disparities in agricultural and industrial development [12]
7. Recent Policies for Rural and Urban Development in India-NREGA, JNNURM, PURA, AMRUT [12]

GEOG02GE2 (Practical) [Credits: 2  Marks: 30]

1. Delineation of agricultural regions according to given criteria using Weavers/Rafiullah method [20]
3. Measurement of inequality: Lorenz curve and location quotient [12]
4. Human Development Index; Choice, Normalization and Aggregation of Parameters [20]

Suggested Readings: Regional Development

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

Detailed Syllabus for Third Semester of Geography (Major) Undergraduate Course

Course Name: Climatology
Course Type: Core Course
Course Code: GEOG03C5
Total Marks: 100

Course Evaluation:
Question Pattern -
Internal Assessment –

GEOG03C5 (Theory) [Credits: 4 Marks: 70]

UNIT 1: Atmospheric Composition, Structure and Energetics
1.1 Atmospheric Composition - Variation with Altitude, Latitude and Season; Constant and Variable gases; Vertical structure of the atmosphere; Temperature Inversion [3]
1.2 Mechanism of energy transfers: Conduction, convection and radiation; Nature of radiation; Radiation laws [6]
1.4 Planetary Radiation balance; Latitudinal heat balance; Greenhouse effect [4]

UNIT 2: Atmospheric Moisture
2.1 Evaporation, Measures and measurements of atmospheric humidity; Vapour pressure and saturation [3]
2.2 Adiabatic temperature changes; Stability and Instability; near-surface condensation - dew, mist, fog and clouds [5]
2.3 Lifting processes: orographic, frontal, convergence and convective [3]
2.4 Precipitation: Types and mechanisms [4]

UNIT 3: Atmospheric Pressure and Winds
3.1 Laws governing air motion and resulting flow patterns [6]
3.2 Planetary Winds, General Circulation, Jet Streams [6]
3.3 Zonal circulations: Tropical, Mid latitudes and High latitudes [6]

UNIT 4: Atmosphere-Ocean Interactions and Climatic Classification
4.1 Walker circulation and ENSO
4.2 Monsoon - Origins and Mechanisms
4.3 Classification of world climates (Koppen and Thornthwaite); Genetic Classification using air masses (Oliver)

GEOG03C5 (Practical) [Credits: 2 Marks: 30]

UNIT 1: Climate Data Analysis
1.1 Preparation of Station model and interpretation of synoptic chart
1.2 Preparation of climatological diagrams including hythergraph, hyteograph, climographs, ergograph, ombrothermic, water-balance, rainfall dispersion and relative temperature diagrams
Suggested Readings: **Climatology**

Detailed Syllabus for Third Semester of Geography (Major) Undergraduate Course

Course Name: Statistical Methods in Geography  
Course Type: Core Course

Course Code: GEOG03C6  
Credits: 6

Total Marks: 100

Course Evaluation:

Question Pattern -

Internal Assessment -

GEOG03C6 (Theory) [Credits: 4 Marks: 70]

Unit I: Descriptive Statistics

1.1 Preparation of Table; Frequency Distribution - graphical description [2]
1.2 Frequencies (Quartiles, Quintiles, Deciles, Percentiles), Cross Tabulation, Central Tendency (Mean, Median and Mode, Centro-graphic Techniques, Dispersion (Mean Deviation, Quartile Deviation and Standard Deviation, Variance and Coefficient of Variation) [10]
1.3 Description of Shape -Skewness, Kurtosis, Moments [5]

Unit II: Probability and Sampling

2.1 Counting rules: Permutation and Combination [2]
2.2 Sample Spaces and Events; Union, Intersection and Compliments of Events; Rules and Types of Probability (Addition, Conditional, Compound and Absolute Probability, Multiplicative Rule, Independence); Decision Table and Tree; Theorem of Total Probability - Bayes’ Theorem [10]
2.3 Probability Distributions - Discrete and Continuous; Probability Mass Function and Probability Density Function; Theoretical Distributions: Normal, Binomial, Poisson and Multinomial [10]
2.4 Population and sample; Sampling strategies, sampling distributions; Sampling estimates for large and small samples tests involving means and proportions [5]
2.5 Hypothesis Testing: Reasoning of tests of significance; Procedure for one sample parametric tests [10]

Unit III: Correlation, Regression and Time Series Analysis

3.1 Rank Correlation, Product Moment Correlation [3]
3.2 Simple Regression, Residuals from regression [3]
3.3 Simple curvilinear regression; Introduction to multi-variate analysis [2]
3.4 Time Series processes; smoothing time series; Time series components [2]

GEOG03C6 (Practical) [Credits: 2 Marks: 30]

Unit I: Practical Excercises

1.1 Problems based on the topics outlined above [64]
Suggested Readings: *Statistical Methods in Geography*

2. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
Detailed Syllabus for Third Semester of Geography (Major) Undergraduate Course

Course Name: Regional Geography of India
Course Code: GEOG03C7
Course Type: Core Course
Credits: 6
Total Marks: 100

Module Evaluation:
Question Pattern -
Internal Assessment -

GEOG03C7 (Theory) [Credits: 5 Marks: 80]

Unit I: Physical Setup
1.1 Physiographic Divisions: Great Himalayas, Great Plains and Peninsular Region [12]
1.2 Drainage: Nature of Himalayan and Peninsular Drainage Systems; Theories of extra-peninsular drainage evolution: Pascoe and Pilgrim; River Regimes [6]
1.3 Principal climatic characteristics, Mechanism of the Indian monsoon, India's climatic classification (Koppen); Soils: distribution, types and characteristics of major soil groups. Natural Vegetation Classification (Champion) [12]

Unit II: Population and Social Aspects
2.2 Caste groups, Language and Dialect groups, Religious composition, Literacy [6]

Unit III: Economic Aspects
3.1 Distribution and utilization of iron ore, coal and petroleum [4]
3.2 Agricultural production and distribution of rice and wheat, Green Revolution in India [4]
3.3 Problems and prospects of cotton textile industry; Trends and development of Iron and Steel Industry [4]
3.4 Regional and Local Development Programmes: MGNREGA, IAY and PMGSY (Rural), JNNURM and NIUS (Urban) [4]

Unit IV: West Bengal
4.1 Physical perspectives: Physiographic divisions, forest and water resources [4]
4.2 Economic Setup: Agriculture, mining, and industry [3]
4.3 Population: Growth, distribution and human development [3]
4.4 Regional Issues: North Bengal, Ganga Delta and Rarh Bengal [12]

GEOG03C7 (Tutorial) [Credits: 1 Marks: 20]

Unit I: Presentation and Review
1.1 Literature review, book review, written assignment submission, and presentation on various topics [32]
Suggested Readings: Regional Geography of India


Module Name: Climate Change: Vulnerability and Adaptation  
Module Type: Generic Elective

Paper Code: GEOG03GE3

Credits: 6

Total Marks: 100

Module Evaluation:

Question Pattern - 

Internal Assessment -

GEOG03GE3 (Theory) [Credits: 4  Marks: 70]

1. Science of Climate Change: Understanding climate change- Climate system and Earth’s energy balance, climate variability and climate change; Evolution of climate and environmental thinking- scientization, politicization and securitization [10]
2. Evidences in favour of climate change; Challenges in confirming climate change [3]
3. Theories of climate change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC [5]
5. Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health [5]
7. Adaptation and Mitigation: Initiatives in South Asia- ASEAN Agreement on Transboundary Haze Pollution, Asia-Pacific Partnership on Clean Development and Climate [10]
8. India’s National Action Plan on Climate Change; Regional and Local Institutions (Urban Local Bodies, Panchayats) [8]
9. Contrasting ways of thinking climate change, Key points of disagreement about climate change [8]

GEOG03GE3 (Practical) [Credits: 2  Marks: 30]

1. Power Point Presentations on five selected topics related to possible consequences of climate change [32]
2. Analysis of Paleoclimatic data [16]
3. Mapping of disaster vulnerability [16]

Suggested Readings: Climate Change: Vulnerability and Adaptation

1. Historical Perspectives on Climate Change, James Rodger Fleming, Oxford University Press, 2005
7. Climate Change Science: An Analysis of Some Key Questions; National Research Council, Division on Earth and Life Studies, Committee on the Science of Climate Change; National Academies Press, 2001
11. Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity; Mike Hulme, Cambridge University Press, 2009
12. The Discovery of Global Warming; Spencer R. Weart, Harvard University Press, 2008
Detailed Syllabus for Third Semester of Geography (Major) Undergraduate Course

**Module Name:** Geographical Information Systems

**Module Type:** Skill Enhancement Course

**Paper Code:** GEOG03SEC1

**Total Marks:** 100

**Module Evaluation:**

**Question Pattern**

**Internal Assessment**

**GEOG03SEC1 [Credits: 4 Marks: 100]**

2. Global Positioning System (GPS) - Principles and Uses; Hand-held GPS/DGPS [8]
3. GIS Data Structures: Types (Spatial and Non-spatial), Raster and Vector Data Structure [8]
4. GIS Data Analysis: Input; Geo-Referencing; Editing, Output and Query; Overlays [4]
5. Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring [12]

**Practical Record:** A project file consisting of 5 exercises on using any GIS Software on above mentioned themes [16]

**Suggested Readings:** Geographical Information Systems

Course Name: Economic Geography
Course Type: Core Course
Course Code: GEOG04C8
Total Marks: 100

Course Evaluation:
Question Pattern -
Internal Assessment -

GEOG04C8 (Theory) [Credits: 4 Marks: 70]

Unit 1: Basic Concepts
1.1 Geographical approach to Economy- space, place and scale; Economy- concept, assumptions; Economic processes-Development and globalization; Concepts in Economic Geography: Goods and services, production, exchange and consumption, economic man, Economic distance and transport costs [18]
1.2 Capitalist Economy- features and contradictions; Capitalism, commodities and consumers; Commodity Chain: spatial structure, buyer-driven & producer-driven, institutional framework [6]
1.3 Technological changes and their geographical impacts; Economic agglomeration- bases and typology [4]
1.5 New Economic Geography: tenets of Political Economy [4]

Unit 2: Economic Theories
2.1 Factors Affecting location of Economic Activity with special reference to Agriculture (Von Thunen's Theory), and Industry (Weber’s Theory) [4]
2.2 Theories of Losch, Walter Isard and Gunner Myrdal, Smith and Palander [10]

Unit 3: Global Economic Entities
3.1 Transnational Economic Activities- Forms of organization; Strategies of labour control in global economy and strategies of labour to control global economy [4]
3.2 Consumption process: Significance of consumption in Economy, Mass consumption Vs. Fordist Consumption; Changing pattern of retailing; Spaces of Consumption- Store, Street, Mall and Theme Parks [6]
3.3 International agreements and trade blocs: WTO and OPEC [4]

GEOG04C8 (Practical) [Credits: 2 Marks: 30]

Unit 1: Spatiality of economic activity
1.1 Application of GIS in economic space analysis and representation of human identity [16]
1.2 Application of ‘Minimum Requirements Method’ for the pattern analysis of industrial concentration in a particular area/region [14]
1.3 Qualitative methods in regional programme evaluation: Application of the story-based approach [14]
1.4 Linear programming: use of economic data [20]
Suggested Readings: Economic Geography

### Detailed Syllabus for Fourth Semester of Geography (Major) Undergraduate Course

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Geography</td>
<td>Core Course</td>
<td>6</td>
</tr>
</tbody>
</table>

**Course Code:** GEOG04C9  
**Total Marks:** 100

#### Module Evaluation:

**Question Pattern** -  
**Internal Assessment** -

**GEOG04C9 (Theory) [Credits: 4 Marks: 70]**

**Unit 1: Basics of the environment**

1.1 Human-Environment Relationships: Historical Processes (Speciation, diversification, abundance and extinction; Dispersal - mechanisms of range expansion, Barriers and Corridors); Adaptation in different Biomes (Tropical and Temperate Forests and Grasslands) [12]

1.2 Ecosystem: Concept, structure and organisation (Components, Trophic Structure, Food Chain and Food Web, Keystone Species, Ecological Pyramids); Functions (Energy Flow, Biogeochemical Cycles, Gross and Net Productivity) [12]

1.3 Classification of Plants (Plantae) and Animals (Animalia) [4]

1.4 Ecosystem Processes (Plant Community Dynamics: Competition, Predation, Mutualism, Symbiosis; Causes, Stages and Types of Plant Succession, Climax Communities: Climatic, Edaphic and Biotic; Adaptation Strategies of Hydrophytes, Xerophytes and Halophytes); Ecosystem Types - Terrestrial and Aquatic [12]

**Unit 2: Biogeographical Pattern and Processes:**

2.1 Agents of Biogeographical Pattern: The Geographic Template - Climate, Substrate and Terrain [8]

2.2 Ecological controls - Physical limiting factors and Habitat; Niche and life forms; Relationships: Niche and geographic range, and distribution and abundance [10]

2.3 Concepts, Significance and Types of Biodiversity [24]

**GEOG04C9 (Practical) [Credits: 2 Marks: 30]**

**Unit 1: Practical Exercises**

1.1 Methods of studying Plant Communities: Species density, frequency, abundance, cover, association index and index of similarity; Delineation of ecosystem boundaries

1.2 Biodiversity mapping using Indices
Suggested Readings: *Environmental Geography*

Course Name: Nature and Natural Disasters
Course Type: Core Course
Course Code: GEOG04C10
Credits: 6
Total Marks: 100

Course Evaluation:
Question Pattern -
Internal Assessment -

GEOG04C10 (Theory) [Credits: 4 Marks: 70]

Unit 1: Physical concepts and laws governing Nature
1.1 Motion in one dimension: description and equations; Motion under gravity; Universal Law of Gravitation; Mass, weight and pressure; Circular motion; Simple Harmonic Motion
1.2 Work: moment, couple, torque; Energy - potential and kinetic; Power; Stress, strain, deformation and elasticity; Hydrostatic balance, Buoyancy and Flotation; Viscosity
1.3 Waves: Properties, types and propagation
1.4 Atomic structure; Chemical measures - atomic number, atomic mass, molecular weight, Avogadro’s number and mole; Periodic Table; Chemical bonding; Radioactivity and Half-life; Acids, bases and salts; Chemical reactions
1.5 Dating techniques; Isotopes, Chemical groupings of elements in the Periodic Table; Numerical problems on chemical measurements
1.6 Kinetic Theory of gases and gas laws; Change of state - latent heat; Heat flow and heat capacity; Laws of Thermodynamics and related concepts; Adiabatic process

Unit 2: Natural Hazards and Disasters
2.1 Hazards- concept, classification, and relationships with disaster and human vulnerability
2.2 Disaster Management: Hazard assessment, Hazard resistant design, Prediction and warning, Community preparedness, Training and awareness, Landuse planning, Aid and Insurance
2.3 Mid-latitude Cyclone: Structure and life cycle; Polar front theory; Frontogenesis and Frontolysis
2.3 Tropical Cyclones: Formation, decay, cross section; naming tropical storms; Disastrous effects of storm surge and flooding; Saffir-Simpson scale of cyclone intensity
2.4 Causes of soil acidity and liming of acid soils; Buffering capacity; Causes and effects of soil alkalinity; Reclamation of saline soils
2.5 Soil Degradation: Mechanisms and factors of soil erosion; Soil Fertility Decline: Plant nutrients and their sources; Roles of NPK in plant’s growth; Processes of soil nutrient loss
2.6 Biodiversity: Threats and conservation; Geodiversity: Concept and conservation

GEOG04C10 (Practical) [Credits: 2 Marks: 30]

Unit 1: Analysis of Earth Materials and Climatic Data
1.1 Grain Size Analysis though sieving: computation of indices, Phi scale plots, graphical representation on probability graph and determination of graphic mean, skewness and kurtosis
1.2 Soil Organic Matter (using kit)
1.3 Climatological Time Series Analysis: Analysis of Trend - smoothing Techniques (Moving Average and Least Square) and detrending; Analysis of Seasonality - Seasonal average of detrended data, Deseasonalization, Seasonally adjusted Series
Suggested Readings: Nature and Natural Disasters

Module Name: Sustainable Development  
Module Type: Generic Elective  
Paper Code: GEOG04GE4  
Credits: 6  
Total Marks: 100

Module Evaluation:

Question Pattern -

Internal Assessment -

GEOG04GE4 (Theory) [Credits: 4  Marks: 70]
2. Goals and Strategies of Sustainable Development [6]
3. Sustainable Development Yardsticks: Measuring Progress and Success [8]
4. Utilisation of non-conventional energy sources [7]
5. Environmental Sustainability and Environmental Ethics [6]
7. Sustainable agriculture and Food Security [4]
8. Sustainable approaches to urban water management [8]
10. Sustainable Smart Cities and Good Governance [8]

GEOG04GE4 (Practical) [Credits: 2  Marks: 30]
1. Literature review, written assignment submission and presentation on various topics [24]
2. Measuring Ecological Footprint as an indicator of sustainability [20]
3. Sustainable urban water management exercises [20]

Suggested Readings: Sustainable Development
Module Name: Research Methods
Paper Code: GEOG04SEC2
Total Marks: 100

Module Evaluation:
Question Pattern -
Internal Assessment -

GEOG04SEC2 (Theory) [Credits: 4  Marks: 100]

Unit 1: Soil Sample Analysis
1.1 Sample Collection Methods and Techniques [12]
1.2 Determination of N, P, K Status in collected Soil Sample [12]

Unit 2: Water Quality Analysis
2.1 Water Sample Collection Methods and Techniques [10]
2.2 Determination of pH, DO, TDS, Turbidity, Salinity, Conductivity, Iron, Hardness of collected samples [16]
2.3 Water Quality Analysis and Mapping [14]

Practical Record: A project work consisting of 5 exercises on using analytical methods mentioned above.

Suggested Readings: Research Methods
Detailed Syllabus for Fifth Semester of Geography (Major) Undergraduate Course

Course Name: Regional Planning and Development
Course Type: Core Course
Course Code: GEOG05C11
Total Marks: 100

Course Evaluation:
Question Pattern -
Internal Assessment -

GEOG05C11 (Theory) [Credits: 4 Marks: 70]

Unit 1: Regions and Regional Planning
1.1 Concept of regions, Types of regions and their delineation [4]
1.2 Types of planning, principles and objectives of regional planning [4]
1.3 Characteristics and Delineation of Planning Region [4]

Unit 2: Regional Planning in India
2.1 Need for regional planning in India [2]
2.2 Delineation of Planning Region in India [3]
2.3 Agro Ecological Zones in India [3]
2.4 Multi-level planning in India [3]
2.5 Urban regions in India: Census definitions; Changing connotations [3]
2.6 Hierarchy of urban systems, city types, metropolitan areas, urban agglomerates [3]

Unit 3: Regional Development
3.1 Development: Meaning, growth versus development [2]
3.2 Stages of Economic Development: Rostow and Marx [4]
3.3 Indicators of development: Economic, social and environmental, Human development [2]
3.4 Concept of underdevelopment; efficiency-equity debate [3]

Unit 4: Theories and models for regional development
4.1 Growth pole model (Perroux, Myrdal and Hirschman) [6]
4.2 Core Periphery Model (Friedman) and Growth Foci Concept in Indian Context [4]

UNIT 5. Regional development in India
5.1 Regional disparity and diversity in India [3]
5.2 Overview of Planning in India [3]
5.3 Backward Regions and Regional Plans - Special Area Development Plans in India [4]
5.4 DVC - The Success Story and the Failures; NITI Aayog [4]

Paper Type: GEOG05C11 (Practical) [Credits: 2 Marks: 30]

Unit 1: Tools and techniques of regional planning
1.1: Cluster analysis, calculation of HDI, GDI and HPI, Lorenz curve, and location quotient [32]
1.2: Extraction of transport network of a region from satellite images and analysis using indices [32]
Suggested Readings: *Regional Planning and Development*

2. Bhat L.S. (1972): Regional Planning In India, Statistical Publishing Society
18. N.A.T.M.O. *Regional Planning*, IGU Publication
Course Name: Remote Sensing

Paper Code: GEOG05C12

Total Marks: 100

Course Evaluation:

Question Pattern

Internal Assessment

GEOG05C12 (Theory) [Credits: 4 Marks: 70]

Unit 1: Basic Concepts
1.1 Remote Sensing: Definition and Development; Platforms and Types; Photogrammetry [8]
1.2 Concepts of spheroid, ellipsoid and projection systems. Significance of WGS 84 and UTM [10]
1.3 Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS); Sensors [14]

Unit 2: Image Analysis
2.1 Image Processing (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Vegetation Indices: NDVI, EVI, Classification (Supervised and Un-supervised) [6]
2.3 Application of Remote Sensing: Land Use Land Cover; Accuracy Assessment; Change Detection [20]

GEOG05C12 (Practical) [Credits: 2 Marks: 30]

Unit 1: Practical Exercises
1.1 Different exercises on digital image processing, image analysis and classification and information extraction [64]

Suggested Readings: Remote Sensing
Module Name: Hydrology and Oceanography
Module Type: Discipline Specific Elective
Paper Code: GEOG05DSE1
Credits: 6
Total Marks: 100

Module Evaluation:
Question Pattern -
Internal Assessment -

GEOG05DSE1 (Theory) [Credits: 4 Marks: 70]

Unit 1: Hydrology
1.1 Hydrological Cycle: Global and basin; Water Budget [6]
1.2 Precipitation: Intensity-Duration-Frequency Relationships [8]
1.3 Measuring Interception, Evaporation, Evapotranspiration, Infiltration, Throughflow [6]
1.4 Hydrological parameters: measurement of river discharge [4]
1.5 Floods: Frequency Analysis and Droughts: Types & Indices [4]

Unit 2: Oceanography
2.1 Evolution and Structure of Ocean Floor topography: Atlantic, Pacific and Indian Ocean [6]
2.2 Sea level rises, Deep Water Circulation, Waves, Currents and Tides - Characteristics and mechanism [18]
2.3 Properties of Ocean Water: Physical and Chemical (Salinity, Temperature, Density, Chloride, Sodium, Sulphur, Magnesium, Calcium and Potassium) [10]
2.4 Coral Reefs, Volcanic Island: Types and Theories of Origin [4]
2.5 Marine sediment Deposits, Mineral composition and Significance of Ocean Resource potentiality [4]

GEOG05DSE1 (Practical) [Credits: 2 Marks: 30]

Unit 1: Hydrological analysis
1.1 Baseflow separation in a hydrograph [12]
1.2 Computation of unit hydrograph and rating curve [10]
1.3 NRCS CN method for estimating runoff [10]

Unit 2: Oceanic attributes
2.1 Computation of T/S Diagram and interpretation [14]
2.2 Tidal data analysis and Presentation (Temporal Scale) [18]
Suggested Readings: Hydrology and Oceanography

Detailed Syllabus for Fifth Semester of Geography (Major) Undergraduate Course

Module Name: Agricultural Geography
Module Type: Discipline Specific Elective
Paper Code: GEOG05DSE2
Credits: 6
Total Marks: 100

Module Evaluation:
Question Pattern - Internal Assessment -

GEOG05DSE2 (Theory) [Credits: 4 Marks: 70]

Unit 1: Introduction to Agricultural Geography
1.1 Definition, scope and development of Agricultural Geography [4]
1.2 Approaches to the study of Agricultural Geography: Regional and Systematic, Population and Productivity [4]
1.3 Contribution of the Agricultural Sector in economy and employment [4]

Unit 2: Factors affecting Agriculture and Land Use
2.2 Land use categories and regional variation in land use pattern [4]
2.3 Size of land holdings: advantages and disadvantages [4]
2.4 Land capability classification and land use planning [4]

Unit 3: Agricultural Regionalization and Dimensions of Agricultural Development
3.1 Agricultural Regionalisation: Concept, scope and techniques of delineation [4]
3.2 Dimensions of Agricultural Development: Productivity, Diversification, Commercialisation and Contract Farming [4]
3.3 Concept of cropping pattern, crop concentration, crop combination, crop rotation [4]
3.4 Measures of agricultural efficiency and regional disparity [4]

Unit 4: Agricultural Revolution and Irrigation Development in India
4.1 Agricultural Revolution in India – Green, White, Blue, Pink [6]
4.2 Population and food availability-surplus and deficit situation [4]
4.3 Role of irrigation in Indian Agriculture [6]
4.4 Problems of agriculture with special reference to India [4]

GEOG05DSE2 (Practical) [Credits: 2 Marks: 30]

Unit 1: Practical Exercises
1.1 Preparation of crop-combination map by combinatorial analysis (Weaver’s and Rafiullah’s method) [20]
1.2 Determination of crop-diversification (Jasbir Singh, Bhatia and Gibb’s-Martin index) [20]
1.3 Determination of crop-productivity (Yang, Stamp, Eneydi, Shafi, Singh methods) [20]
1.4 Laboratory notebook & viva-voce [4]
Suggested Readings: *Agricultural Geography*

Detailed Syllabus for Sixth Semester of Geography (Major) Undergraduate Course

Course Name: Evolution of Geographical Thought
Course Type: Core Course
Course Code: GEOG06C13
Credits: 6
Total Marks: 100

Module Evaluation:
Question Pattern -
Internal Assessment -

GEOG06C13 (Theory) [Credits: 5 Marks: 80]

Unit 1: Introduction to Geographical Thought: Early development phase
1.1 Pre-Modern: Early Origins of Geographical Thinking with reference to the Classical and Medieval Philosophies. (Greek, Roman and Arab Philosophers; Age of exploration and discoveries)

Unit 2: Establishment of Geography: Modern phase
2.1 Modern: Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America

Unit 3: Evolving Geographical Thought: Dialogues and debates
3.1 Debates: Environmental Determinism and Possibilism, Systematic and Regional, Ideographic and Nomeothetic

Unit 4: Towards a maturing Geography from World War - II to present time
4.1 Trends: Quantitative Revolution and its Impact, Behaviouralism, Systems Approach, Radicalism, Feminism; Structuralism; Towards Post Modernism: Changing Concept of Space in Geography, Future of Geography
4.2 Paradigms in Geography

GEOG06C13 (Tutorial) [Credits: 1 Marks: 20]

Unit I: Presentation and Review
1.1 Literature review, book review, written assignment submission, and presentation on various topics

Suggested Readings: Evolution of Geographical Thought
Detailed Syllabus for Sixth Semester of Geography (Major) Undergraduate Course

Course Name: Fieldwork
Course Type: Core Course
Paper Code: GEOG06C14
Total Marks: 100

Course Evaluation:

GEOG06C14 (Field Survey) [Credits: 4 Marks: 70]

A Field Survey shall involve “Identification, Mapping and Interpretation of Salient Features of the Habitat, Economy and Society of the Local Inhabitants”

- Measurement and mapping of slope using Clinometer / Dumpy Level / Abney Level or other instruments
- Measurement and mapping of geomorphic and geographical features with GPS and other relevant instruments
- Acquisition and mapping of landuse pattern by ‘plot–to–plot’ survey using cadastral map or of a municipal ward
- Acquisition and mapping of socio-economic data by ‘door–to–door’ household enumeration using questionnaire
- Identifying the relations between and among the attributes / components of: habitat, economy and society

Pages containing illustrations (sketches, graphs, diagrams, maps, photographs, etc) = 25 (maximum)

Documentation and generation of the field report with the following arrangement: preface, introduction, objectives, methodology, data acquisition, data analysis, data display and interpretation, analysis and conclusion, appendix (of data), and bibliography / references

Word Limit = 8000 (maximum) excluding Tables and Appendix (Computer typed, Line Spacing = 1½, Arial / Times New Roman / Helvetica /Calibri / Trebuchent 10 / 11)

GEOG06C14 (Field Report) [Credits: 2 Marks: 30]

A Field Report to be prepared and submitted individually by each student, based on actual Field Survey of an area, done jointly or in groups with other students under the supervision of one or more Prof-in-Charge, Field Study

Presentation, Group Discussion and Viva on the prepared Field Report as stated above

Suggested Readings: Fieldwork
Module Name: Soil Geography
Module Type: Discipline Specific Elective
Paper Code: GEOG06DSE3
Total Marks: 100

Module Evaluation:
Question Pattern -
Internal Assessment -

GEOG06DSE3 (Theory) [Credits: 4    Marks: 70]

Unit 1: Soil and Soil Properties
1.1 Concept and definition of soil; Components [2]
1.2 Soil Profile: Regolith, weathering profile; Ideal soil profile: Master horizons and sub-horizons, style of designation, solum [5]
1.3 Units: Pedon, polypedon, soilscape, soil continuum, soil mapping unit [4]
1.4 Soil Morphology: Colour; Texture; Structure; Bulk Density; Porosity; Consistence [8]
1.5 Soil Mineralogy: Types of clay minerals; crystal structure, properties and occurrences of oxides and silicates [5]
1.6 Soil Organisms: Types; Roles in nitrogen fixation, nitrification, denitrification and ammonification [4]
1.7 Soil Organic Matter: Sources, composition, decomposition of soluble and insoluble substances; Humus; Clay-humus complex; Properties of soil colloids; Cation Exchange; Base Saturation [5]
1.8 Soil Water: Modes of occurrence; Forces on soil water; Soil water retention; Soil water movement [4]
1.9 Soil pH: Definition and development of soil pH; Effects on nutrient availability [4]

Unit 2: Soil Forming Factors and Processes
2.1 Jenny’s factorial model of soil genesis: Parent material, relief, biotic, climate and time factors [4]
2.3 Specific processes of horizon differentiation: Calcification-decalcification; Podzolization; Laterization; Latosolization; Gleization; Lessivage; Pedoturbation; Paludization; Melanization [4]
2.4 Typical soil profile development: Podzol; Laterite and Chernozem [6]

Unit 3: Soil Classification
3.1 1938 Soil Classification System; System of Soil Taxonomy – diagnostic horizons, soil moisture and temperature regimes; Soil names and formative elements; USDA Seventh Approximation [5]

GEOG06DSE3 (Practical) [Credits: 2    Marks: 30]

Unit 1: Soil Analysis
1.1 Plotting of soil texture in ternary diagram [24]
1.2 Determination of soil colour in Munsell colour chart [20]
1.3 Determination of Soil pH [20]
Suggested Readings: *Soil Geography*

Detailed Syllabus for Sixth Semester of Geography (Major) Undergraduate Course

Module Name: Social and Political Geography  
Module Type: Discipline Specific Elective  

Paper Code: GEOG06DSE4  
Credits: 6  
Total Marks: 100

Module Evaluation:

Question Pattern -

GEOG06DSE4 (Theory) [Credits: 4 Marks: 70]

Unit 1: Social Geography

1.1 Relevance of Social Geographic relevance: Peopling Process of India and Indian Society; Technology and Occupational Changes; Migration and Diaspora [8]
1.2 Social Categories: Caste, Class, Language, Religion, Race, Gender and their spatial distribution [8]
1.3 Geographies of Welfare and Wellbeing: Concept and Components - Healthcare, Housing, Education and Empowerment [8]
1.4 Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime [8]

Unit 2: Political Geography

2.1 State, Nation and Nation State: Frontiers, Boundaries, Territory and Sovereignty, Concept of Nation State; Concept of geopolitics and theories (Heartland and Rimland) [16]
2.2 Electoral Geography - Geography of Voting, Geographic Influences on voting pattern, Geography of Representation, Gerrymandering [16]

GEOG06DSE4 (Practical) [Credits: 2 Marks: 30]

Unit 1: Practical learning

1.1 Analysis of access, infrastructure, and availability of healthcare, housing and educational facilities using data for India [22]
1.2 Analysis of political issues pertaining to election, displacement, SEZ, disputes arising from water and natural resource using secondary data [22]
1.3 Literature review, book review, written assignment submission, and presentation on various topics on social and political geography [20]
Suggested Readings: Social and Political Geography