Structure and Detailed Syllabus
of the Undergraduate (Major) Course (B.Sc.) in Geography

Department of Geography
Presidency University

Department of Geography
(Faculty of Natural Sciences and Mathematics),
Presidency University,
Hindoo College (1817-1855), Presidency College (1855-2010)
86/1, College Street, Kolkata - 700 073
West Bengal, India
## Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Semester-wise Course Structure and Module Compositions</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>B. Detailed Syllabus and Suggested Reading List for respective Modules</strong></td>
<td>4 - 31</td>
</tr>
<tr>
<td>• Foundations of Geoscience</td>
<td>4</td>
</tr>
<tr>
<td>• Scale, Rocks and Minerals, Topographical Maps</td>
<td>6</td>
</tr>
<tr>
<td>• Economic Geography</td>
<td>7</td>
</tr>
<tr>
<td>• Map Projection and Surveying</td>
<td>9</td>
</tr>
<tr>
<td>• Concepts in Geotectonics and Geomorphology</td>
<td>10</td>
</tr>
<tr>
<td>• Population and Settlement Geography</td>
<td>12</td>
</tr>
<tr>
<td>• Cartograms and Quantitative Techniques</td>
<td>13</td>
</tr>
<tr>
<td>• Geomorphology - Forms and Processes</td>
<td>14</td>
</tr>
<tr>
<td>• Climatology</td>
<td>16</td>
</tr>
<tr>
<td>• Geographical Information Systems and Earth Materials</td>
<td>17</td>
</tr>
<tr>
<td>• Hydrology and Oceanography</td>
<td>19</td>
</tr>
<tr>
<td>• Soil Geography</td>
<td>20</td>
</tr>
<tr>
<td>• Social, Cultural and Political Geography</td>
<td>21</td>
</tr>
<tr>
<td>• Statistical Techniques in Geography</td>
<td>23</td>
</tr>
<tr>
<td>• Remote Sensing</td>
<td>24</td>
</tr>
<tr>
<td>• Biogeography</td>
<td>25</td>
</tr>
<tr>
<td>• Regional Geography of India</td>
<td>26</td>
</tr>
<tr>
<td>• Philosophy of Geography</td>
<td>28</td>
</tr>
<tr>
<td>• Geological Map and Climatic Data Analysis</td>
<td>30</td>
</tr>
<tr>
<td>• Field Work and Report Writing</td>
<td>31</td>
</tr>
</tbody>
</table>
### Semester-wise Course Structure and Module Compositions

<table>
<thead>
<tr>
<th>Semester</th>
<th>Papers</th>
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<th>Marks</th>
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**Year : First**

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<th>Paper Code</th>
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<th>Credits</th>
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<tr>
<td>1</td>
<td>Theory</td>
<td>Foundations of Geoscience</td>
<td>MP-TH-1</td>
<td>GEOG0191</td>
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<td>2</td>
<td>Practical</td>
<td>Scale, Topographical Maps, Identification of Rocks &amp; Minerals</td>
<td>MP-PR-1</td>
<td>GEOG0191</td>
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<td><strong>Total - One Theory Module and One Practical Module</strong></td>
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**Year : First**

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<td>3</td>
<td>Theory</td>
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<td>MP-TH-2</td>
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<td>MP-PR-2</td>
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**Semester : Third**  
**Year : Second**

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<th>Sl. No.</th>
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<th>Course No.</th>
<th>Credits</th>
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**Year : Second**

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<td><strong>Total - Two Theory Modules and One Practical Module</strong></td>
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**Semester : Fifth**  
**Year : Third**

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<td>11</td>
<td>Theory</td>
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<td>MP-TH-7</td>
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<td>Statistical Techniques in Geography</td>
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<td>15</td>
<td>Practical</td>
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<td>MP-PR-6</td>
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**Semester : Sixth**  
**Year : Third**

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<th>Sl. No.</th>
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<td>17</td>
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<td>18</td>
<td>Theory</td>
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<td>20</td>
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<td>MP-PR-8</td>
<td>GEOG0692</td>
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<td><strong>Total - Three Theory Modules and Two Practical Modules</strong></td>
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Course Credits denote the number of teaching hours allocated to the Module / week during the course of the Semester.

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

Odd Semesters: Semesters One, Three and Five - July to December; Even Semesters: Semesters Two, Four and Six - January to June.

Students will also complete a total of 10 GenEd Modules within the first four Semesters of the entire Course [3 + 3 + 2 + 2].
DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Foundations of Geoscience

Paper Type: Theory  Paper Code: MP-TH-1  Course No.: GEOG 0101

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Physical Concepts and Laws

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 [4]

1.2 Work – moment, couple, torque; Energy - potential and kinetic; Power; Stress, strain, deformation and elasticity; Hydrostatic balance, Buoyancy and Flotation; Viscosity [4]

1.3 Waves – Properties, types and propagation [3]

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 [6]

1.5 Dating techniques; Isotopes, Chemical groupings of elements in the Periodic Table; Numerical problems on chemical measurements* [4]

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

1.7 Exemplar natural thermodynamic systems and entropy relations, Heat engine*

Unit II: Fundamentals of Mathematics

2.1 Basic Algebra: Theory of Sets and Venn Diagrams; Progression and Series; Functions, Graphs and Equations [6]

2.2 Vector and Matrix Algebra: Vectors - Notation, Addition and Subtraction; Matrix - Addition, Subtraction, Multiplication, Determinants, Matrix Inverse, Solution of set of simultaneous equations [4]

2.3 Logarithms and Indices: Laws of Logarithm - solving equations and finding solution by experiments [3]

2.4 Plane Trigonometry: Trigonometric ratios; Trigonometric Identities - Trigonometric Ratios of sum and difference of two angles, and multiple and sub-multiple angles; Properties of Triangles [7]

2.5 Calculus: Differentiation - basic relationships, Differentiation of basic functions; Integration - basic relationships, area and volume [8]

2.6 Exercises on application of Mathematics in Geography*

Unit III: Earth Materials and Structures

3.1 Minerals: Genesis, Characteristics, Classification [1]

3.2 Rocks: Igneous (Granite, Basalt), Sedimentary (Sandstone, Limestone, Conglomerate), Metamorphic (Gneiss, Schist, Marble) - Genesis, Characteristics, Classification (Mineralogical and Textural), Principles of Stratigraphy; Rock Cycle * [3]

3.3 Interior of the Earth - Seismological Evidences based Zonation, Properties of each Layer [2]

3.4 Folds and Faults: Formation, Mechanism, Classification, Economic importance

3.5 Crustal Isostasy - Background & Discovery: Theories of Airy and Pratt; Global Isostatic Adjustments and Gravity Anomalies [2]

3.6 Geological Timescale - Units, Significant Structural and Evolutionary Events in each Period *
Suggested Readings: Foundations of Geoscience

Module Name: Scales, Rocks and Minerals, Topographical Maps
Paper Type: Practical  
Paper Code: MP-PR-1  
Course No.: GEOG 0191
Total Marks: 50
Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)
Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week
Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Scale
1.1 Definition and Types [4]
1.2 Construction of Scales: Linear, Diagonal, Vernier [12]
1.3 Scale Enlargement and Reduction [6]

Unit II: Identification of field specimens of Rocks and Minerals
2.1 Identification of Rocks: Igneous: Granite, Basalt, Dolerite; Sedimentary: Shale, Sandstone, Limestone, Conglomerate, Laterite; Metamorphic: Slate, Phyllite, Schist, Marble, Quartz, Gneiss [10]
2.2. Identification of Minerals: Talc, Gypsum, Calcite, Mica, Feldspar, Quartz, Chalcopyrite, Haematite, Magnetite, Bauxite, Galena [10]

Unit III: Interpretation of Topographical Map of Plateau Region with R.F. 1:50,000
3.1 Principles of Topographical Map Numbering as followed by Survey of India [4]
3.2 Drawing of cross section and demarcation of Broad Physiographic Divisions [6]
3.3 Construction of profiles: Superimposed, Projected, Composite [9]
3.4 Morphometric Techniques in 10cm x 12cm area: Relative Relief (after G.H. Smith, 1935), Average Slope (after C.K. Wentworth, 1930), Drainage Density (after R.E. Horton, 1945), Road Density [12]
3.5 Interpretation of relief, drainage and vegetation characteristics [9]
3.6 Interpretation of settlement, transport and communication systems [8]
3.7 Relationship between physical and cultural elements [6]

Suggested Readings: Scales, Rocks and Minerals, Topographical Maps
DEPARTMENT OF GEOGRAPHY  
PRESIDENCY UNIVERSITY

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

Module Name: Economic Geography

<table>
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<tbody>
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Total Marks: 50  (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated for the topic (except for Assignments)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Resource Studies

1. Resource - Concept and Classification *
2. Resource Perception and Functional Theory of Resource
3. Resource Utilization – Economic and Environmental Approach
4. Resource conservation – Forrester Meadows model on Limits to Growth, Concept of Spaceship Earth
5. Concept of Human Resource
6. Resource depletion and Sustainable use of resources *

Unit II: Agricultural Geography

1. Concept and techniques of agricultural regionalization – normative, empirical, single element and statistical
2. Crop Combination and Crop Diversification
3. Measures of agricultural productivity and efficiency
4. Classification of world agricultural system after Whittlesey
5. Selected agricultural production systems- Intensive Rice farming (South East Asia), Extensive Wheat farming (USA), Plantation Farming (Rubber in SE Asia), Mixed Farming (NW Europe) *
6. Models in Agricultural Geography - Von Thunen’s model on spatial distribution of agriculture, Haggerstrand’s model on diffusion

Unit III: Industrial Geography

1. Factors influencing the development of an industry *
2. Mining Industry in India
3. Resource based and foot loose industries – concept and determinants
4. Theories of industrial location - Weber, Losch, Walter Isard
5. Gunner Myrdal’s cumulative causation model on economic development
6. Impact of mining and manufacturing industrial activities on environment *

Unit IV: Geography of Transport and Tourism

1. Concept of Distance, Accessibility and Connectivity
2. Place of tourism activities in the realm of Geography; Leisure – recreation – tourism relationship
3. Tourism as an industry and its components *
4. Tourism Area Life Cycle (TALC) model after Richard W. Butler
5. Responsible tourism and social tourism – impacts on nature & society and associated sustainability issues *
6. Tourism – Climate interface and impacts of climate change on destinations.

- 7 -
**Suggested Readings: Economic Geography**

Module Name: Map Projection and Surveying

Paper Type: Practical

Paper Code: MP-PR-2

Course No.: GEOG 0291

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week

Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Map Projection

1.1 Maps - nature and classification [2]

1.2 Map Projections - necessity and classification [6]

1.3 Basic concepts - parallels and meridians, datum, spheroid, geoid, great circles, scale factor, deformations, orthodrome, loxodrome and geodesic (simple problems) [8]

1.4 Co-ordinate systems and location on globe and 2D planes, Transformations

1.5 Principles, Theories, Construction and Properties of select Map Projections

- Polar Zenithal Case (Gnomonic, Stereographic, Orthographic) [6]
- Conical Case (Simple Conical Projection with one Standard Parallel, Bonne's, Polyconic, Sinusoidal) [8]
- Cylindrical Case (Equal Area, Orthomorphic, Mercator, Gall) [8]
- Special Case (Molleweide) [6]

1.6 Universal Transverse Mercator Grid System [4]

Unit II: Surveying

2.1 Make Your Own Map: Introduction to mapping with hand-held GPS including the concepts of Waypoints and Tracks; Data downloading and visualization [20]

2.2 Levelling by Dumpy Level with at least one change point: Drawing of profile [16]

2.3 Use of Prismatic Compass for determination of magnetic bearings; Contouring with Prismatic Compass and Dumpy Level [12]

Suggested Readings: Map Projection and Surveying

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Concepts in Geotectonics and Geomorphology

Paper Type: Theory
Paper Code: MP-TH-3
Course No.: GEOG 0301

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Conceptualising Global Tectonics

1.1 Continental Drifting - Early Premises, postulates and oppositions
1.2 Wegener’s Hypothesis – claims, evidences, criticisms, refutes, importance and later revival
1.3 Palaeomagnetism: Concept, Measurement, Polarity changes & Magnetic reversals – Implications for Tectonics
1.4 Sea-floor spreading & Crustal Rifting: Concept, Discovery, Mechanism, Ocean Bottom Topography- Tectonic Implications
1.5 Major and Minor Plates on the Earth Surface: Position & Composition, Rates of Movement, History of Plate Motions
1.6 Benchmark Studies in Plate Tectonics and Evolutionary Timeline of the Concept from inception to the present *

Unit II: Tectonic Interactions and Landscapes

2.1 Plate Margins: Types, Mechanisms, Landforms & Impacts on Surface Processes
2.2 Relationships between Plate Tectonics and Vulcanicity: Bowen's Reaction Series, Hot-Spots and Intra-Plate Volcanism
2.3 Volcanic Eruptions: Types, Distribution and Associated Landforms *
2.4 Mountain Building: Orogenic Types and Classification - relation with Tectonics
2.5 Plate Tectonics and Earthquake Genesis: Seismological Measurements, Distribution & Intensity, Prediction & Safeguards
2.6 Impact of Plate Tectonics on Environmental Resources: Formation, Distribution, Extraction, Utilisation, Conservation *

Unit III: Geomorphological Concepts

3.1 Uniformitarianism and Neo-catastrophic Approaches, Basic Geomorphic Principles
3.2 Spatial and Temporal Scales, Landform Hierarchy and Landscape Changes
3.3 Systems Approach - Concept and Classification; Weathering Processes and Drainage Basins as Geomorphic Systems
3.4 Glaciers and Coasts as Geomorphic Systems - Components and Interrelationships *
3.5 Concepts of Base Level, Graded Stream, Interruption and Rejuvenation of Erosion Cycle and effects on landforms

Unit IV: Landscape Formation and Evolution

4.1 Climatic Geomorphology: Basic Concepts; Morphogenetic Regions and Morphoclimatic Zones - Ideas of Peltier and Budel
4.2 Structural Geomorphology: Landforms and Drainage alignments in regions of unclinal, folded and faulted structures
4.3 Slopes - Genesis, Morphology, Denudational Balance and Classification Scheme of Dalrymple
4.4 Landscape Evolution Models - Davis, Penck and Hack
4.5 Planation Surfaces - Identification, Evolution and Classification *
Suggested Readings: Concepts in Geotectonics and Geomorphology

Module Name: Population and Settlement Geography

Paper Type: Theory  Paper Code: MP-TH-4  Course No.: GEOG 0302

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated for the topic (except for Assignments)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern: Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Population Geography

2. Age-sex structure of population of Developed and Developing Countries [4]
6. Demographic Transition Model [2]

UNIT II: Settlement Geography

2.2 Urban Settlements: Census categories, Metropolitan concept, City-region and Conurbation, Urban Landuse [9]
2.3 Urban Landuse and Morphology: Classical models - Burgess, Homer-Hoyt, Harris and Ullman [6]
2.4 Rural Settlements: Site and situation, nature and characteristics, Types and patterns of rural settlement *
   Classification of rural settlements, Morphology of rural settlement in the Indian context [10]
2.5 Regional Settlement Hierarchy: Primate City, Rank-Size Rule, Central Place Theory [9]
2.6 Settlement Classification based on situation and functions *, Method of functional classification by Harris and Nelson [4]

Suggested Readings: Population and Settlement Geography

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: **Cartograms and Quantitative Techniques**

Paper Type: Practical  Paper Code: MP-PR-3  Course No.: GEOG 0391

Total Marks: 50

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week

Module Evaluation: Continuous Evaluation throughout the Semester

1.1 Data: Nature and Characteristics
   - Data representation by Graphs (using Microsoft Office Excel) [2]
   - Data representation by Pie and Ternary Diagrams (using Microsoft Office Excel) [8]
   - Data representation by Maps: Dot and Sphere, Choropleth Map [10]

1.2 Computation of Human Development Index and ranking of countries and Indian states based on HDI and GDI [10]
1.3 Preparation of Questionnaire and Survey Schedule for Assessment of Development and Perception Study [8]
1.4 Measures of Inequality: Index of Dissimilarity, Lorenz Curve and Gini Coefficient, Location Quotient [14]
1.5 Measures of Interaction and Spatial Distribution: Nearest Neighbour Analysis, Rank-Size Rule (Zipf, Berry), Gravity and Potential Models [18]
1.6 Combinational Analysis: Dominant Distinctive Function, Weaver’s Method of Crop Combination and Rafiullah’s Method of Critical Combination, Ternary Diagram [18]

Suggested Readings: **Cartograms and Quantitative Techniques**

DEPARTMENT OF GEOGRAPHY  
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Detailed Syllabus for Fourth Semester of Geography (Major) Undergraduate Course

Module Name: Geomorphology - Forms and Processes

| Paper Type: Theory | Paper Code: MP-TH-5 | Course No.: GEOG 0401 |

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Weathering, Hillslope Stability and Mass Movement

1.1 Climatic control and measurement of Erosion and Deudational Rates with Vertical Zonation and Soil Formation [6]
1.2 Spatial variation of Weathering Processes and Resultant Landforms - Tropical, Sub-Tropical, Polar Regions [9]
1.3 Supergene Mineral Ores and Placers [2]
1.4 Hillslope Erosion and Failure due to Running Water and Mass Movement [8]
1.5 Falls, Slides, Topples, Lateral Speeding and Complex Mass Movements *
1.6 Landslide Prediction and Mitigation *

Unit II: Fluvial and Glacial Geomorphology

2.1 Fluvial Processes and Landforms
   - Hydraulics of Fluid Flow [2]
   - Sediment Transport [2]
   - Fluvial Erosion [1]
   - Longitudinal Profile, Base Level and Stream Capture [2]
   - Fluvial Channel Systems [1]
   - Fluvial Sedimentation and Forms [3]
   - Fluvial Terraces [1]
   - *Flooding *

2.2 Glacial Processes and Landforms
   - Present and Past Extents of Glaciers [1]
   - Mass Balance in Glaciers: Accumulation and Ablation [1]
   - Glacial Movements [1]
   - Processes of Erosion and resulting Landforms [3]
   - Mechanisms of Glacial Deposition and resulting Landforms [3]

Unit III: Aeolian and Coastal Geomorphology

3.1 Aeolian Processes and Landforms
   - Origin and Characteristics of Aeolian particles [1]
   - Aeolian Erosion and resulting Landforms [3]
   - Dune Processes [1]
   - Desert Dust *

3.2 Marine Processes and Landforms
   - Waves, Currents and Tides [3]
   - Cliff Coasts and Rocky Platforms [3]
   - Beaches, Barriers and Spits [3]
   - Mudflats and Salt Marshes [2]
   - *Estuaries and Deltas*
   - *Coastal Risk and Management*
Suggested Readings: Geomorphology - Forms and Processes

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

Module Name: Climatology

Paper Type: Theory  Paper Code: MP-TH-6  Course No.: GEOG 0402

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I : Structure and Energy Exchange of the Atmosphere

1. Atmospheric composition: Constant and variable gases
2. Vertical structure of the atmosphere
3. Ozone depletion - a global issue*
4. Mechanism of energy transfers: Conduction, convection and radiation; Nature of radiation; radiation laws
5. Atmosphere-Solar radiation interactions - reflection, scattering, absorption, transmission
6. Planetary Radiation balance; Latitudinal heat balance; Green house effect and Kyoto protocol
7. Inversion of temperature
8. Heat waves; urban heat island*

Unit II : Atmospheric Moisture

2.1 Vapour pressure and saturation; Measures and measurement of atmospheric humidity
2.2 Adiabatic temperature changes and condensation; Lifting processes- orographic, frontal, convergence and convective
2.3 Near surface condensation- dew, mist, fog; Condensation
2.4 Mechanisms of Precipitation
2.5 Measurement of precipitation, Spatial variability of rainfall in India*

Unit III : Atmospheric Circulation

3.1 Factors influencing air motion and resulting flow patterns
3.2 Idealized Tricellular Model of global atmospheric circulation - its modifications at surface and upper air circulation: Jet streams; Zonal circulations- tropical, mid latitudes and high latitudes;

Unit IV : Atmosphere-Ocean Interactions and Climatic Classification

4.1 Mid-latitude weather pattern: Polar front theory; front; Structure and life cycle of a mid-latitude cyclone; Cyclogensis
4.2 Tropical Cyclones- formation, decay, cross section; Naming tropical storms; Disastrous effects of storm surge and flooding;
4.3 Walker circulation and ENSO
4.4 Severe cyclones in the Bay of Bengal*
4.5 Classification of world climate- Schemes of Koppen and Thornthwaite

Suggested Readings: Climatology

DEPARTMENT OF GEOGRAPHY
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Detailed Syllabus for Fourth Semester of Geography (Major) Undergraduate Course

Module Name: Geographical Information Systems and Earth Materials Analysis

Paper Type: Practical  Paper Code: MP-PR-4  Course No.: GEOG 0491

Total Marks: 50

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week

Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Geographical Information Systems

1.1 Theoretical Basis of a GIS
Definitions, Historical Development, Components of a GIS
Types of Geospatial datasets: Raster, Vector, Surface - Attributes and Functionality
Attributes of a Geodatabase
GIS Applications: Case Studies

1.2 Preliminary GIS Operations
Map Georeferencing (Part of a topographical map / administrative map/ thematic map)
Creation of vector layers (Point, Segment and Polygon) with associated attribute tables and digitization
Extraction of Location co-ordinates of point features, Distances between point features, Length of a line feature
Computation of Perimeter, Area and Centroid of a polygon feature

1.3 Database Manipulation
Attaching attribute data for point, segment and polygon layers
Attribute Table Maintenance - editing, updating, adding, deleting data fields
Importing and incorporating external datasets into existent databases - Census data, Surveyed data, GPS data
Exporting geodatabases, inter-operability functions with other softwares, Integrating datasets with Google Earth

1.4 Thematic Map Generation
Query Building and Information Extraction
Buffer demarcation for point, segment and polygon layers
Map Overlays and Layer Combinations
Creation of thematic maps for point, segment and polygon layers with annotated layouts

1.5 Surface Models
Generation of TIN and DEM from digitised contour datasets
Creating 3-D views with draped overlays
Basic terrain morphometry analysis using generated DEMs
Extractions of Surface Cross-sections and Viewshed Analysis

Unit II: Earth Materials Analysis

2.1 Soil Analysis
Soil Sample Collection Methods and Techniques
Determination of N, P, K Status in collected Soil Sample
Estimation of Organic Matter in collected Soil Sample
Determination of Soil pH

2.2 Grain Size Analysis
Computation of Indices
Graphical Representation

2.3 Water Analysis
Water Sample Collection Methods and Techniques
Determination of pH of collected sample
Water Quality Analysis and Mapping
Suggested Readings: Geographical Information Systems

DEPARTMENT OF GEOGRAPHY  
PRESIDENCY UNIVERSITY

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

Module Name: Hydrology and Oceanography

Paper Type: Theory  
Paper Code: MP-TH-7

Course No.: GEOG 0501

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated for the topic (except for Assignments)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern: Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Hydrology

1.1 Global and Basin Hydrological Cycle

1.2 Precipitation: Frequency Analysis of Point Rainfall: Intensity-Duration-Frequency Relationships

1.3 Evaporation and Transpiration: Nature, Factors; Estimates of Potential Evapotranspiration by Thornthwaite’s Equation

1.4 Infiltration: Nature and Factors, Infiltration Capacity, Calculating Infiltration with φ index and Green-Ampt Model *

1.5 Surface Runoff: Infiltration Excess and Saturation Excess Surface Runoff, NRSC CN Method for Estimating Runoff *

1.6 Hydrographs: Factors Affecting a Hydrograph, Baseflow separation, Rating Curve and Unit Hydrograph *

1.7 Flood Frequency Analysis

1.8 Groundwater: Types of sub-surface water, Types of aquifers, Groundwater flow: Darcy's Law; Salt Water Intrusion *

Unit II: Oceanography

2.1 Spatio-Temporal Changes in Sea Levels

2.2 Evolution and Structure of Ocean Floor and Ridges - Atlantic, Pacific and Indian Oceans

2.3 Ocean Heat Budget, Deep Water Circulation and Currents

2.4 Properties of Ocean Water - Physical and Chemical

2.5 Origin and classification of Ocean Sediments

2.6 Coral and Volcanic Islands *

2.7 Resource Potentiality of Oceans *

Suggested Readings: Hydrology and Oceanography


Module Name: Soil Geography

Paper Type: Theory
Paper Code: MP-TH-8
Course No.: GEOG 0502

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)
Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Soil Basics
1.1 Concept and definition of soil; Components
1.2 Soil Profile: Regolith, weathering profile; Ideal soil profile – Master horizons and sub-horizons, style of designation, solum
1.3 Study of soil profiles from photographs*
1.4 Units: Pedon, poly pedon, soilscape, soil continuum, soil mapping unit

Unit II: Soil Properties
2.1 Soil Morphology: Colour; Texture; Structure; Bulk Density; Porosity; Consistence
2.2 Soil Mineralogy: Types of clay minerals; Crystal structure, properties and occurrences of oxides and silicates
2.3 Soil Organisms: Types; Roles in nitrogen fixation, nitrification, denitrification and ammonification
2.4 Soil Organic Matter: Sources, composition, decomposition of soluble and insoluble substances; Humus; Clay-humus complex; Properties of soil colloids
2.5 Soil Water: Modes of occurrence; Forces on soil water; Soil water retention; Soil water movement
2.6 Soil pH: Definition and development of soil pH; Effects on nutrient availability; causes of soil acidity and liming of acid soils; Buffering capacity; Causes and effects of soil alkalinity; Reclamation of saline soils
2.7 Soil Fertility: Plant nutrients and their sources; Roles of NPK in plant’s growth; Cation Exchange; Base Saturation
2.8 Influence of soil texture, structure and organic matter on other soil properties and soil fertility, Munsel colour system*

Unit III: Soil Forming Factors and Processes
3.1 Jenny’s factorial model of soil genesis: Parent material, relief, biotic, climate and time factors
3.2 Pedogenic Processes: Simonson’s process-system model; Fundamental processes – Eluviations and Illuviation
3.3 Specific processes of horizon differentiation: Calcification-decalcification; Podzolization; Laterization; Latosolization; Gleization; Leaching; Pedoturbation; Paludization; Melanization
3.4 Typical soil profile development: Podzol; Laterite and Chernozem
3.5 Major soil types in India*

Unit IV: Soil Classification and Soil Erosion
4.1 1938 Soil Classification System; System of Soil Taxonomy – diagnostic horizons, soil moisture and temperature regimes; Soil names and formative elements
4.2 Soil erosion: Mechanisms and factors of soil erosion
4.3 Techniques on soil conservation in humid regions and on mountain slopes *

Suggested Readings: Soil Geography
DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Social, Cultural and Political Geography

Paper Type: Theory
Paper Code: MP-TH-9
Course No.: GEOG 0503

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)
Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

UNIT I: Social and Cultural Geography

1.1 Social Geography: Definition, Evolution and its relation with other Social Sciences; Sources of Social Statistics in India [4]

1.2 Social Space and Elements of Society

1.3 Basics of Cultural Geography
   Nature and Scope of Cultural Geography, Environment and culture; Concept of Culture-areas and Cultural Regions; Theories of tribal groups; Dwelling places as cultural expressions [6]

1.4 Elements of Cultural Geography
   Concept of culture: Cultural Hearth and Realm, Cultural Landscape, Cultural Diffusion, Cultural Segregation and Regeneration, Socio-Cultural Transformations: Sanskritisation, Westernisation, Globalisation [6]

1.5 Geography of Language
   Concept of Languages: Dialects, Language Families, Classification of Indian languages, Spatial distributions, Minority languages, Language Shift, Language Concentration and Diversification Index [6]

1.6 Mapping Distribution: Spatial concentration of Scheduled and Non-Scheduled Populations (Idea of socio-spatial exclusivity) *

1.7 Mapping Social Space: Preparation of Perception Map, Mapping Social Inequality *

UNIT II: Political Geography

2.1 Nature, Scope, Content and Evolution of Political Geography, Relation with other branches of Social Sciences [4]
   Politics, Power and Political Geography: Nation, State and Territory as the central organising principle of Political Geography [4]
   Evolution of Political Geography: Classical Phase - Ratzel, German Geopolitics [4]

2.2 Indian Political Structure
   Colonial Structure of India, Bases of Reorganization of Indian States since Independence, Local Self-Governance [4]
   Federalism, Centre - State Relations, Basic Structure of India’s Constitution [4]

2.3 Inter-State Disputes, Socio-Political and Regional Aspirations and Movements in India, Creation of New States [4]

2.4 Electoral Geography and Election System in India, Gerrymandering [4]

2.5 Understanding social and political theories and concepts through popular texts: Mahabharata (Vyas Deva), Arthashastra (Kautilya), Raktakarabi (Rabindranath Tagore), The Prince (Niccolo Machiavelli), 1984 (George Orwell), The Wealth of Nations (Adam Smith), Das Kapital (Karl Marx), Orientalism (Edward Said) *
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Suggested Readings: Social & Cultural Geography


Suggested Readings: Political Geography

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Statistical Techniques in Geography

Paper Type: Practical  Paper Code: MP-PR-5  Course No.: GEOG 0591

Total Marks: 50

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Descriptive Statistics

1.1 Measurement scales of geographical data; Types of statistical analysis in Geography; Population and sample; Sampling strategies
1.2 Summarizing data - Preparation of Table; Frequency Distribution - graphical description
1.3 Numerical description of frequency distribution - Central Tendency (Mean, Median and Mode), Partition values (Quartiles, Deciles and Percentiles) - Dispersion (Absolute and Relative)
1.4 Description of Shape - Skewness, Kurtosis, Moments
1.5 Geographical interpretations of frequency curves; Box-plots

Unit II: Probability and Sampling

2.1 Counting rules: Permutation and Combination
2.2 Sample Spaces and Events; Union, Intersection and Compliments of Events; Conditional Probability and Independence; Rules of Probability (Addition, Conditional Probability, Multiplicative Rule); Decision Table and Tree; Theorem of Total Probability - Baye’s Theorem
2.3 Probability Distributions - Discrete and Continuous; Probability Mass Function and Probability Density Function; Normal Distribution; Binomial Distribution; Poisson distribution
2.4 Sampling Distribution - Variables and Proportions; Student’s t Distribution

Unit III: Analysing Hypotheses

3.1 Estimating Confidence Interval and Statistical Significance
3.2 Hypothesis Testing - Concept and Types; Null and Alternative Hypothesis; Type I and Type II Errors; Test statistics; Degree of freedom; Rejection and acceptance of Null Hypothesis; General steps in hypothesis testing
3.3 Hypothesis Testing - Z test and t test

Unit IV: Correlation and Regression

4.1 Covariance and Correlation; Correlation Coefficients and Sum of Squares
4.2 Ordinary Least Square Method; Simple Linear Regression; Curvilinear Regression - Polynomial, Logarithmic, Power and Exponential Curve Fitting; Residual Mapping

Suggested Reading: Statistical Techniques in Geography

Module Name: Remote Sensing

Paper Type: Practical  
Paper Code: MP-PR-6  
Course No.: GEGE 0592

Total Marks: 50

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week

Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Introduction to Remote Sensing
1.1 Electromagnetic Radiation and the Electromagnetic Spectrum [4]
1.2 EMR interactions with the Earth’s surface [4]

Unit II: Image Pre-processing
2.1 Geometric Corrections [4]
2.2 Radiometric Corrections [4]

Unit III: Image Enhancement
3.1 Visualising Multispectral Images [2]
3.2 Contrast Stretching [4]
3.3 Filtering Techniques: Low Pass, High Pass, Directional Filters, Edge Enhancement [4]

Unit IV: Estimation of Earth Surface Properties
4.1 Band Math: Addition, Subtraction, Ratio, Simple Model Building [10]
4.2 Vegetation Indices: NDVI, Tasseled Cap, EVI [6]
4.3 Supervised Classification [6]
4.4 Unsupervised Classification [4]
4.5 Land Cover Mapping and Accuracy Assessment [12]
4.6 Change Detection [10]

Unit V: Terrain Modelling
5.1 Introduction to DEM and its Sources [4]
5.2 DEM Visualization: Hill Shade, Viewshed [4]
5.3 Extraction of Basin Characteristics from a DEM [10]

Suggested Readings: Remote Sensing

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY
Detailed Syllabus for Sixth Semester of Geography (Major) Undergraduate Course

Module Name: Biogeography

Paper Type: Theory  Paper Code: MP-TH-10  Course No.: GEOG 0601

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)
Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.
Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.
Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Basics of Biogeography

1.1 Introductory Biogeography: Nature, Scope and Content; Significance of Biogeography and its relation to other Sciences;
   Contributions of Philip Lutley Sclater and Alfred Russel Wallace in development of Biogeography *; Contemporary Biogeography [6]
1.2 Ecological foundations of Biogeography: Biosphere and Ecosphere - Definition, Nature and Hierarchy of structure (Organism, Species, Population, Community, Ecosystem, Biome) [6]
1.3 Ecosystem Structure - Components, Trophic Structure, Food Chain and Food Web, Keystone Species, Ecological Pyramids * [6]
1.4 Ecosystem Functioning - Energy Flow, Biogeochemical Cycles, Gross and Net Productivity [8]
1.5 Ecosystem Processes - Plant Community Dynamics (Competition, Predation, Mutualism, Symbiosis); Causes, Stages and Types of Plant Succession, Climax Community; Adaptation Strategies of Hydrophytes, Xerophytes and Halophytes;
   Ecosystem Types - Terrestrial and Aquatic [10]
1.6 Methods of studying Plant Communities - Species density, frequency, abundance, cover, association index and index of similarity *
   Delineation of ecosystem boundaries *

Unit II: Biogeographical Pattern and Processes:

2.1 Agents of Biogeographical Pattern: The Geographic Template - Climate, Substrate and Terrain; [6]
2.2 Ecological controls - Physical limiting factors and Habitat; Niche and life forms; Relationships - Niche and geographic range, and distribution and abundance, Methods of mapping and measuring range * [6]
2.3 Distribution of Communities: Major Biomes of the World - Tropical and Temperate Forests and Grasslands
   Biogeographical Regions- Phytogeographical Regions and Zoo-geographical Realms * [6]
2.4 Historical Processes: Speciation, diversification and extinction; Dispersal- mechanisms of range expansion, Barriers and Corridors [4]
2.5 Concepts, Significance and Types of Biodiversity, Biodiversity Indices [6]

Suggested Readings: Biogeography

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

Module Name: Regional Geography of India

Paper Type: Theory  
Paper Code: MP-TH-11  
Course No.: GEOG 0602

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern - Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Physical Setup

1.1 Major Geological Structures and Physiographic Divisions; Regional Accounts of Physical Units *
1.2 Drainage Characteristics; Peninsular and Extra-peninsular Drainage - Origins and Regimes
1.3 Climatic Regions of India, Mechanisms of the Indian Monsoon
1.4 Major Soil Groups; Forest Types and Characteristics
1.5 Agro-climatic Regions and Agro-ecological Zones – Delineation and Characteristics

Unit II: Economic Aspects

2.1 Five Year Plans - Characteristics and Schemes specific to Agriculture, Industry and Infrastructural Development
2.2 Information Technology Sector, Petrochemical, Power and Heavy Manufacturing Industries - Location and Characteristics *
2.3 Regional and Local Development Programmes: MGNREGA, IAY and PMGSY (Rural) and JNNURM & NIUS (Urban)
2.4 SEZ and EEZ - Delineation and Development, Policies and Problems

Unit III: Regional Issues: Case Studies

3.1 Big Dams - Garhwal Region and Narmada Valley: Development vs. Displacement
3.2 Chotanagpur: Economic Wealth vs. Economic Development;
3.3 Drought and Agricultural Issues: Bundelkhand and Telangana;
3.4 Development Issues facing North-eastern States - Political, Ethnic and Economic Status
3.5 Environmental Movements in India; Protecting Biodiversity: Chipko and Silent Valley Movements *

Unit IV: West Bengal

4.1 Physiographic Units and related Climatic - Drainage Characteristics; Soil - Vegetation Linkages and Agricultural Regions *
4.2 Population Characteristics: Population Growth and Migration Aspects
4.3 Urbanisation: Problems and Prospects of metropolitan growth of Kolkata
4.4 North Bengal - Landslide Hazards and Riverbank Erosion Problems
4.5 Rarh Bengal – Water Scarcity and Irrigation, Tribal development
4.6 Ganga Delta - Flooding, Salinisation and Arsenic Problems

- 26 -
Suggested Readings: *Regional Geography of India*

DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Philosophy of Geography

Paper Type: Theory  Paper Code: MP-TH-12  Course No.: GEOG 0603

Total Marks: 50 (Semester Examination - 35 and Internal Assessment - 15)

Credit: 4 Credit Hours / week (4 x 16 teaching weeks = 64 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated for the topic (except for Assignments)

Module Evaluation: Semester Examination (35 marks): Written examination of 2 hours duration will be held at semester end.

Question Pattern: Four Long-answer type questions each of 10 marks (may be split into two parts, one carrying 2 marks at most) will be set for answering any two and five semi-long answer type questions, each of 5 marks will be set for answering any three.

Internal Assessment (15 marks): Portions of the syllabus in italics marked by * will be evaluated during the course through assignments.

Unit I: Evolution of Geographical Thought

1.1 Nature and Evolution of Geographical Thought in the Ancient and Medieval Period
   *Nature and definitions of Geography and its relation to other branches of epistemology*
   *Evolution of Geography in Ancient and Medieval Periods, Encyclopaedic Nature of Geography, Contributions of Greek, Roman, Arab and Indian Geographers*
   European Renaissance and contributions of the voyages, Age of Imperialism [8]

1.2 Dichotomy and Dualism in Geography
   *Physical and Human*
   *Regional (Idiographic) vs. Systematic (Nomothetic) Approach*
   Inductive and Deductive Methods
   Qualitative vs. Quantitative Approach
   Debate between Environmental Determinism and Possibilism, Stop-and-go Determinism [6]

1.3 Nature of Geography
   Hartshorne-Schaefer Debate; Exceptionalism in Geography [6]

1.4 Theory and Paradigm in Geography with special reference to Kuhn [6]

Unit II: Core Concepts of Geographical Thought

2.1 Positivist Philosophy and its Critique
   Empiricism, Positivism and Quantitative Revolution [6]
   Structural Perspective in Geography [4]
   Marxian Dialectical Materialism [2]
   Radical ideology in Geography [4]

2.2 Concept of Space, Domain of Humanistic Geography [6]

2.3 Modern Concepts in Geographical Thought
   Pragmatism, Functionalism, Phenomenology [4]
   Existentialism, Realism [2]
   Behaviouralism in Geography [2]
   *Systems Approach in Geography*
   *Cultural Landscape Approach of Carl. O. Sauer*

2.4 Ecological Approach in Geography
   *Concept of Ecosystem*
   *Human Ecology*
   Urban Ecology [2]

- 28 -
Suggested Readings: *Philosophy of Geography*

Module Name: Geological Map and Climatic Data Analysis
Paper Type: Practical
Paper Code: MP-PR-7
Course No.: GEOG 0691
Total Marks: 50
Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)
Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week
Module Evaluation: Continuous Evaluation throughout the Semester

Unit I: Interpretation of Geological Maps
1.1 Study on different structures like Horizontal, Vertical, Uniclinal, Folded and Faulted [14]
1.2 Drawing of cross sections depicting unconformity, strike/ dip/ bedding planes/ succession of beds, intrusion and their thickness [20]
1.3 Interpretation of the section covering geological history and relation between structure and topography [8]
1.4 Study of one G.S.I. Quadrangle map [6]

Unit II: Climate Data Analysis
2.1 Preparation of Station model and interpretation of synoptic chart [14]
2.2 Preparation of climatological diagrams [12]
2.3 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 [22]

Suggested Readings: Geological Map and Climatic Data Analysis
DEPARTMENT OF GEOGRAPHY
PRESIDENCY UNIVERSITY

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

Module Name: Field Work and Report Writing  
Paper Type: Practical  
Paper Code: MP-PR-8  
Course No.: GEOG 0692

Total Marks: 50

Credit: 6 Credit Hours / week (6 x 16 teaching weeks = 96 credit hours per semester)

Figures in [ ] indicate number of credit hours allocated to that particular topic per teaching week

Module Evaluation: Part Evaluation by Internal Examiners in the Field and during preparation of the Field Report and during a Presentation and Viva Examination at Semester end by External Examiners

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.

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 = not more than 5000, excluding Tables and Appendix (Computer typed, Line Spacing = 1½, Arial / Times New Roman / Helvetica /Calibri / Trebuchent 10 / 11)

Time allotted for Examinee Group = 30 minutes (maximum), LCD Presentation by a group, followed by Group Discussion.

Marks on Field Performance of individual students (=15) shall be awarded by the Internal Examiner(s) and on both Presentation (= 15) and Viva Voce (= 20) by the External Examiner(s).

Suggested Readings: Field Report