Fourth Year Syllabus
Department of Geography and Environment

Four Year B.Sc. Honours Course
Effective from the Session : 2013-2014
National University  
Subject: Geography and Environment  
Syllabus for Four Year B.Sc. Honours Course  
Effective from the Session: 2013-2014

Year wise Paper, Marks and Credit distribution

FOURTH YEAR

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Paper Title</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>243201</td>
<td>Geographical Thoughts and Concepts</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243203</td>
<td>Oceanography</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243205</td>
<td>Geography of Disasters</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243207</td>
<td>Political Geography</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243209</td>
<td>Agricultural Geography</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243211</td>
<td>Geography of South Asia</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243213</td>
<td>Urban Geography</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243215</td>
<td>Principles of Remote Sensing and Geographic Information System</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243216</td>
<td>Practical-IV</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>243218</td>
<td>Viva-voce</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Total =</td>
<td></td>
<td>1000</td>
<td>40</td>
</tr>
</tbody>
</table>
Detailed Syllabus

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Marks: 100</th>
<th>Credits: 4</th>
<th>Class Hours: 60 hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>243101</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Paper Title: Geographical Thoughts and Concepts
Exam Duration: 4 Hours

1. Definition of Geography: Changing nature of geographical concepts and ideas; scope and its subject matter.
2. Geography in pre-modern times: Brief study of Pre-Greek, Classical (Greek-Roman), Dark and Arab (Medieval) periods. Impacts of exploration and discoveries
4. Schools of Geography:
   - The German School of Geography,
   - The French School of Geography,
   - The British School of Geography, The American School of Geography,
   - The Former Soviet and Chinese School of Geography
5. Dichotomies in Geography: Regional versus Systematic Geography; Determinism versus Possibilism; Theoretical versus Applied geography
7. Introduction to major approaches in Geography: Regional Approach; Cultural Landscape and Ecological approach

Suggesting Readings
Lahiri-Dutta, Kuntala, 1999. Development of Geographical Thoughts, Kolkata, India (in Bangla)
James, Preston E. 1972, All Possible World: A history of Geographical Ideas. USA.
Ahmad N (Translated by Islam N & Khan J): Bhugol Biggeyane Musolnumder Obodan, Bangla Academy, Dhaka.
Singh, Savindra, 1995: Environmental Geography, India.
1. Oceanography: Introduction, definition, branch and scope, relation with other subjects.
2. Distribution of oceans over the Globe.
3. Relief of the Ocean: Continental shelves & slope, ocean floor, coral reef, relief of the Atlantic, Pacific and Indian Ocean, coastal morphology.
5. Ocean temperature: Temperature change, cause, vertical and horizontal distribution, implication.
7. Ocean Currents: Causes, types, ocean current in Atlantic, Pacific and Indian Ocean.
8. Tide: Tide generating forces, time of tide, types of tide, tidal bores, and impact of tides.
9. Waves: Components and characteristics, classification of waves, causes of wave.
10. The study of the Bay of Bengal and the marine resources of Bangladesh.

Suggesting Readings
Sharma, R.C. and Vatal, M. Oceanography for Geographers, Chaitanya Publishing House, Allahabad, India
Oliver, J.E., Physical Geography, Duxbury Press, London.
Das, Sc. 2010. Modern Oceanography, Dhaka: (in Bangla)

1. Definition and concept of natural hazard and disaster.
2. Terms and concepts used in hazard and disaster studies/management
3. Typology or classification of hazards and disasters:
   3.1 Natural: extra terrestrial, geological/seismic, meteorological, atmospheric or climatic, hydro meteorological, biological, etc.
   3.2 Human induced (anthropogenic): war, fire, industrial pollution, HYV, accidents, industrial, technological, etc.
   3.3 Mixed (natural and human induced together): bird-flu, water logging, landslide, etc.
4. Genesis, nature, spatial distribution and consequences of major hazards.
5. Interactions between hazard, disaster, risk and vulnerability.
6. Natural hazards in Bangladesh: type, nature, geographical extent, intensity and impacts.
8. Disaster management systems in Bangladesh.

Suggesting Readings

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Marks: 100</th>
<th>Credits: 4</th>
<th>Class Hours: 60 hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Title:</td>
<td>Political Geography</td>
<td></td>
<td>Exam Duration: 4 Hours</td>
</tr>
</tbody>
</table>

1. Introduction to political geography.
   Definition, Scope, Nature and objective of political geography.
   Historical Development of political geography.
   Approaches to political geography.

2. Concept of geopolitics and geostrategy.
   Ancient and Modern Thinkers.
   Power concepts, great power spatial relationship.
   The Balance of power and power conflicts and current affairs.
   Geo-strategic pacts Mac kinder Heartland and Spikeman’s Rimland Theory.
   Geopolitical importance of Bangladesh.

3. Concept of state.
   Definition and Elements of state.
   Territorial concept of the state.
Location, Shape
Size, Boundary
Administrative structure, government system and local government.
Election and Transfer of power
The capital and core

4. Frontiers and Boundaries.
   Definition delineation and Demarcation
   Difference between Frontiers and Boundaries
   Classification and Explan of Boundaries
   enclaves, Refugee Problems, Ocean Economic zone and Buffer zone/state.
   Boundary Problems and solution

5. International Co-Operation
   EU, Commonwealth, Non Aligned Movement, SAARC, ASEAN, OIC,
   NAFTA, CIRDAP, BIMSTEC, WTO, APEC
   Military Alliances.

   The formation and organization of the UNO.
   Objective of the UNO.
   Inter governmental organizations related to UNO.
   Conflict Resolution and the world peace of the UNO.

Book Recommended:
4. Taha, M.A, 1988, Political Geography, Rajshahi University, Rajshahi. (in Bangla)

Paper Code: 243109 Marks: 100 Credits: 4 Class Hours: 60 hrs.
Paper Title: Agriculture Geography Exam Duration: 4 Hours

1. Agricultural Geography: Definition, Scope and Significance.
3. Agricultural Systems of the world: Whittlesey’s Classification; Classification of world agriculture
4. Models of Agricultural Regionalization: Methodology for Agricultural Regionalization; Crop Combination Regions (Weaver Model).
5. Agriculture in Bangladesh: Issues and Challenges.
6. Land Utilisation, Cropping pattern and cropping intensity in Bangladesh.
7. Food grain production, supply and diversification: constraints and potentials.

Suggesting Readings:
1. Alim. A. Agriculture of Bangladesh.

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Marks: 100</th>
<th>Credits: 4</th>
<th>Class Hours: 60 hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Title:</td>
<td>Geography of South Asia</td>
<td></td>
<td>Exam Duration: 4 Hours</td>
</tr>
</tbody>
</table>

1. History of south Asia and geographical regions.
   1.1 Geographical Location
   1.2 Member countries: National Boundaries, Basic Demographic and Socio-Economic Data Bases
2. Physical Environment setting of South Asia: geomorphic features, drainage system, soil, vegetation
3. Cultural Environment of South Asia
   3.1 Population Dynamics and distribution
   3.2 Economy: Types of Economy, economic activities, Per capita and GDP
   3.3 Agriculture: Agriculture system, Major crop productions, Geographical distribution
   3.4 Industry: Large scale industry, small Scale Industry, Distribution of Large scale Industries, Industrial policies.
   3.5 Settlement: Rural settlement, Urban settlement,
   3.6 Transportation and communication
   3.7 Trade and commerce: Internal and External Trade.
4. Regional connectivity and its prospect
5. Major problems and co-operation of south Asia: Water sharing, energy resource and SAARC.

Suggesting Readings
1. **Introduction to Urban Geography**: Definition, scope and methodology; Concept of urbanization, urbanism, urban centre, city, central place, metropolis, egalopolis.

2. **Origin and History of Urbanization**: Urbanization in the ancient period; urbanization in the middle ages; Modern urbanization; Contemporary urbanization.

3. **Urbanization and Urban Growth (Macro System)**: Level of urbanization; Factors of urbanization and urban growth; Process of urbanization; Systems of cities/Central Place Theory/Urban hierarchy, Ranks size rule; Urbanization and urban growth in Bangladesh.

4. **Urbanization -- The City System (Micro System)**: Factors of city/urban growth; Stages and processes in urban/city growth; Internal structure of city (Land use and transport network; Central Business District (CBD); Location of retail business, residential and manufacturing areas in a city; Sub-urban and urban fringe area)

5. **Economic Base of Cities**: Basic non-basic concept; Formal/informal sector.

6. **Classification of Cities**: Needs and purposes; Early examples of classification: Harris, Nelson and Smales; Classification of Bangladesh cities.

**Selected Readings:**
Crtier, Harold, : Urban Geography, NY
Giibs, J.P.: Urban Research Method, NY
Jones, Emerys, Readings in Social Geography
Yeates and Gamer, North American Cities,
Knox, Paul 1998: Social Geography
Elahi, KM and Rumi, SRA (eds.) 2013. Urban Geography- Recent Trends (in Bangla)
A. Remote Sensing (RS)
1. Introduction of Remote Sensing: historical development; Fundamental Consideration, Electromagnetic Energy and interaction with surface, Sensors / platform system; Active and passive.
2. Earth resource satellites operating in the optical Spectrum: Introduction, early history of imaging, Landsat satellite program, spot satellite program, Indian resource satellites, meteorological satellite, Ocean monitoring satellites, earth observing system ERS program; thermal Infrared Remote Sensing and Active and passive Microwave & LIDAR RS, Quick bird. Currently orbiting satellites.
4. Remote sensing data for agriculture; Land use and Land cover, water resource, Forest resources assessment Remote Sensing for Urban Landscape
5. Remote sensing application in Bangladesh

B. Geographic Information Systems (GIS)
6. Introduction to GIS: Definition, components, history and application
7. Nature and sources of spatial data; spatial data structures and data base management
8. GIS data input, editing, analysis, analytical modeling and output
9. Types and sources of errors of GIS data
10. Introduction to contemporary software
11. Issues in GIS: handling spatial data; data quality; GIS project design and management etc.
12. Applications of GIS in Bangladesh

Suggesting Readings
- Curran, Paul, J. Principle of Remote sensing, ELBS (Longman)
Paper Code: 243116  Marks: 100  Credits: 4  Class Hours: 60 hrs.
Class Hours: 60 hrs.
Exams Duration: 6 Hours

Section I: Land Use and Socio-economic Study (Marks- 50)
1. Land use survey:
   1.1 Definition, historical background and objective & types
   1.2 Methods of land use survey
   1.3 Some examples of successful major land use projects: land utilisation survey of Great Britain, TVA of USA
   1.4 Concept of land use capability & suitability survey and land cover survey

2. Data collection from the field
   2.1 Land use data collection through fractional code method
   2.2 Socio-economic data collection

3. Preparation of various physical and land use map,

4. Analysis of data and report preparation


<table>
<thead>
<tr>
<th>Mark Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination (duration 6 hours)</td>
</tr>
<tr>
<td>Field Report and Records</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Suggesting Readings


Section II: GIS Practical (Marks-50)

1. Introduction to hardware and software of GIS
2. Basic Components of GIS Software: Views, Theme, data table, layout etc.
3. Data entry technique in GIS: Scanner, digitizer, keyboard, mouse etc.
4. Digital Mapping elements: Adding legend, Scale, Charts, Table, north line in map
5. Handling primary and secondary GIS data available in Bangladesh.
6. Integration and Geo-processing of GIS data
7. Analysis of GIS data: Coverage and attribute
8. Analysis of RS data: Hard image and digital image
9. Project work based on GPS data or other available field data sources

Suggesting Readings

<table>
<thead>
<tr>
<th>Mark Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination (3 hours)</td>
</tr>
<tr>
<td>Projects/lab work (3 hours)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Marks: 100</th>
<th>Credits: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Title:</td>
<td>Viva-Voce</td>
<td></td>
</tr>
</tbody>
</table>