## B. Sc./ B.A. First Year
### I Semester

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Explanation</th>
<th>Title of the Paper</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>GRB101</td>
<td>Theory</td>
<td>Physical Basis of Geography</td>
<td>4</td>
</tr>
<tr>
<td>GRB102</td>
<td>Practical</td>
<td>Map: Reading and Interpretation</td>
<td>2</td>
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<td><strong>Total</strong></td>
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<td><strong>Semester I</strong></td>
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### II Semester

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<th>Paper Code</th>
<th>Explanation</th>
<th>Title of the Paper</th>
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<tbody>
<tr>
<td>GRB 201</td>
<td>Theory</td>
<td>Human Geography</td>
<td>4</td>
</tr>
<tr>
<td>GRB 202</td>
<td>Practical</td>
<td>Elementary Statistics</td>
<td>2</td>
</tr>
<tr>
<td>GRB 203A*</td>
<td>Theory</td>
<td>Man and Environment (Ancillary Course)</td>
<td>2</td>
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<td><strong>Semester II</strong></td>
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## B. Sc. Second Year
### III Semester

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<th>Explanation</th>
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<tbody>
<tr>
<td>GRB 301</td>
<td>Theory</td>
<td>Economic Geography</td>
<td>4</td>
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<tr>
<td>GRB 302</td>
<td>Practical</td>
<td>Map Projection and Weather Map</td>
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<td><strong>Total</strong></td>
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### IV Semester

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<tbody>
<tr>
<td>GRB 401</td>
<td>Theory</td>
<td>Regional Study of Developed and Developing Countries: U.S.A. and China</td>
<td>4</td>
</tr>
<tr>
<td>GRB 402</td>
<td>Practical</td>
<td>Surveying</td>
<td>2</td>
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<tr>
<td>GRB 403A*</td>
<td>Theory</td>
<td>Basics of Remote Sensing (Ancillary Course)</td>
<td>2</td>
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<td><strong>Total</strong></td>
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<td><strong>Semester IV</strong></td>
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## B. Sc. Third Year
### V Semester

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Explanation</th>
<th>Title of the Paper</th>
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<tbody>
<tr>
<td>GRB 501</td>
<td>Theory</td>
<td>Geomorphology</td>
<td>4</td>
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<tr>
<td>GRB 502</td>
<td>Theory</td>
<td>Geography of India</td>
<td>4</td>
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<tr>
<td>GRB 503</td>
<td>Practical</td>
<td>Representation of Geographical Data</td>
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<tr>
<td>Paper Code</td>
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<tr>
<td>GRB 504</td>
<td>Practical</td>
<td>Field Study, Field Trip and Report Writing</td>
<td>4</td>
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Students may select any ONE from the following Elective (Theory) Papers

<table>
<thead>
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<tbody>
<tr>
<td>GRB 505</td>
<td>Theory</td>
<td>Population Geography *</td>
<td>4</td>
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<tr>
<td>GRB 506</td>
<td>Theory</td>
<td>Social Geography</td>
<td>4</td>
</tr>
<tr>
<td>GRB 507</td>
<td>Theory</td>
<td>Agricultural Geography</td>
<td>4</td>
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<tr>
<td>GRB 508</td>
<td>Assignment-based Seminar</td>
<td>Paper offered in V semester</td>
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</table>

Total Semester V 22

* Currently GRB 505 Elective Paper Will Be Offered Only

**VI SEMESTER**

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>GRB 601</td>
<td>Theory</td>
<td>Climatology</td>
<td>4</td>
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<tr>
<td>GRB 602</td>
<td>Theory</td>
<td>Evolution of Geographical Thought</td>
<td>4</td>
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<tr>
<td>GRB 603</td>
<td>Practical</td>
<td>Geological Map and Map Projection</td>
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<tr>
<td>GRB 604</td>
<td>Practical</td>
<td>Elementary Remote Sensing</td>
<td>4</td>
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<tbody>
<tr>
<td>GRB 605</td>
<td>Theory</td>
<td>Regional Development and Planning *</td>
<td>4</td>
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<tr>
<td>GRB 606</td>
<td>Theory</td>
<td>Political Geography</td>
<td>4</td>
</tr>
<tr>
<td>GRB 607</td>
<td>Theory</td>
<td>Industrial Geography</td>
<td>4</td>
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<tr>
<td>GRB 608</td>
<td>Assignment-based Seminar</td>
<td>Paper offered in VI semester</td>
<td>2</td>
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</tbody>
</table>

Total Semester V I 22

* Currently GRB 605 Elective Paper will only be offered.

**I Semester**

**B. Sc./ B.A. Geography,**


**CREDITS : 4**

**Number of Lectures : 52**

**Unit I**

Origin of the earth (James and Jeffrey, Russell, Lytileton, Lemaitre); Interior of the earth; Rocks: origin and classification; Earth’s movements.

**Unit II**

Major landforms: mountains, plateaus and plains; Gradational processes: weathering and erosion; Works of running water, glacier and wind.

**Unit III**

Composition and structure of the atmosphere; Insolation; Temperature: vertical and horizontal distribution; Pressure and pressure belts; Winds: planetary, periodic and local.

**Unit IV**

Theories of origin of ocean basin (Tetrahedral); Physical properties of sea water: temperature and salinity; Ocean currents; Tides and Coral reefs.

**Books Recommended**


I Semester
B.Sc.

GRB 102. Practical, Paper: 1. Map: Reading and Interpretation

CREDITS : 2
Number of Lectures : 52

Construction of scale: simple, diagonal and comparative; Map reading and Interpretation of topographic sheets, Relief features and profiles (serial, superimposed, projected and composite); Reduction and enlargement of maps.

Books Recommended

II Semester
B.Sc.

GRB 201. Human Geography

CREDITS : 4
Number of Lectures : 52

Unit I
Meaning, nature and scope of human geography; Concepts of human geography; Man-environment relationships: determinism, possibilism and probabilism, and environmentalism.

Unit II
Evolution of man; Classification of races; Characteristics of races and their broad distribution; Human adaptation to environment: Eskimo, Masai and Bushman; Primitive people of India: Tharu, Naga and Bhil.

Unit III
Growth of population; Distribution of population; Major human agglomerations; Types of Migration; Trends of Urbanization.

**Unit IV**
Rural settlements: characteristics, types and regional pattern; Urban settlements: evolution and classification; Rural houses in India: types, classification and regional pattern.

**Books Recommended**

**II Semester**

**B. Sc. Part I**

**GRB 202 : Practical . Elementary Statistics**

CREDITS : 2  
Number of Lectures : 52

Sources of data; classification and Tabulation of data.  
Measures of central tendency: mean, median and mode, and quartile.  
Measures of dispersion: mean deviation, standard deviation.  
Correlation (Karl Pearson and Spearman).

**Books Recommended**

**GRB 203 A**
Ancillary Theory Paper; **Man and Environment**

CREDITS: 2

Unit I :
Evolution of Man; Human Race: Bases and classification; Human Adaptation in different environment: selected tribes.

Unit II:
Man’s interaction in environment, Biomes: Meaning and types; Major Biomes: Rainforest, Savannah, Tundra.

Unit III:
Environment: Meaning and Components; Food Pyramid; Forms and Functions of Ecosystems: Terrestrial, Aquatic; Biodiversity; Climatic Change; Environmental Conservation and Management.

Books Recommended

III Semester

B.Sc. Part II
GRB 301. Economic Geography

Credits: 4
Number of Lectures: 52

Unit I
Meaning and approaches to economic geography; Main concepts of economic geography; Resource: concept and classification; Resource conservation.

Unit II
Natural resources: soil, forest and water; Mineral resources: iron ore and bauxite; Power resources: coal and petroleum; Principal crops: wheat, rice and cotton.

Unit III
Agricultural regions of the world (Derwent Whittlesey); Theory of agricultural location (Von Thunen); Theory of industrial location (Weber); Major industries: iron and steel, and cotton textiles.

Unit IV
World transportation: major trans-continental railways, and sea routes; WTO and International trade: patterns and trends; Major trade blocs: EEC, ASEAN; Effect of globalization on developing countries.

Books Recommended

**B.Sc. III Semester**

**GRB 302: Practical. Map Projection and Weather Map**

Credits: 2  
Number of Lectures: 52

**Map Projection:** Conical: simple conic with one and two standard parallels, Bonne’s;  
Cylindrical: simple and equal area; Zenithal (Polar case): equidistant and equal area.  

**Weather Map:** Weather symbols, Representation of atmospheric features, Interpretation of Indian daily weather maps (July, October and January)

**Books Recommended**

**B.Sc. IV Semester**

**GRB 401**

**Regional Study of Developed and Developing Countries: USA and China**

Credits: 4  
Number of Lectures: 52

**Unit I**
Concepts, bases and characteristics of developed and developing countries; Indicators and Levels of development: Developed, Developing, Under-developed, and Least-developed worlds.

**Unit II**
Physical resource base: landforms, climate, soils, vegetation, power and mineral resources

**Unit III**
Cultural resource base: population, agriculture, industries.

**Unit IV**
Agricultural and industrial regions of USA; Agricultural and geographical regions of China.

**Books Recommended**


**IV Semester**

**GRB 402 : Practical. Surveying**

Surveying: meaning, classification and significance.
Chain and Tape surveying; Plane Table surveying; Prismatic Compass, Abney Level and Indian Clinometer

**Books Recommended**


**GRB 403 A**

Ancillary Theory paper. **Basics of Remote Sensing**

**Unit I**
Remote Sensing: Concept and Scope; Electro-magnetic Radiation: Characteristics, Spectral regions and Bands; Interaction with earth surface features and atmosphere; Spectral Signature

**Unit II**
Types of Remote Sensing: Air borne and Space borne; Aerial photos: Types and Characteristics; Remote Sensing satellites: Platforms and sensors

**Unit III**
Visual and Digital image processing techniques; Remote Sensing application in resource mapping and environmental monitoring

CREDITS : 2
Books Recommended

B. Sc. Part III. V Semester
GRB 501. Geomorphology

Credits: 4
Number of Lectures: 52

Unit I
Nature and scope of geomorphology; Principles and basis of geological time scale; Fundamental concepts: uniformitarianism and dynamic equilibrium, relief and differential rates of geomorphic processes.

Unit II
Cycle of erosion and slope evolution: contributions of Davis, Penck and King; Isostasy, Plate tectonics, Earthquakes; Folded structure and topography; Faulted structure and topography.

Unit III
Mass wasting and different geomorphic agents and processes— fluvial water, Aeolian, glacial, marine and karst.

Unit IV
Evolution and development of river valleys; Drainage patterns and their significance; concept of graded stream; river channels — form, pattern and dynamics; Regional geomorphology of Uttarakhand Himalaya and Middle Ganga Plain.

Books Recommended

B. Sc. Part III. V Semester
GRB 502. Geography of India

Credits: 4
Number of Lectures: 52

Unit I
Geology; Physiographic divisions; Drainage systems; Climate and climatic regions; Soil and vegetation.
Unit II
Minerals and power resources (iron ore, and coal); Multipurpose projects: Damodar Valley, and Bhakhra Nangal; Irrigation; Major industries (iron and steel, cotton textile, and sugar).

Unit III
Crops (rice, wheat, cotton, sugarcane, and tea); Agricultural regions; Green revolution and its consequences

Unit IV
Meso-regions of India (Karnataka plateau, and Uttarakhand) and their characteristics; Transport and communication; Trade: composition and recent changes.

Books Recommended

B.Sc. Semester V
GRB 503: Practical. Representation of Geographical Data

Graphical Representation

Cartographic Representation

Books Recommended

**GRB 504: Practical Field Study, Field Trip and Report Writing**

Credits: 4  
Number of Lectures: 52

**Fieldwork:** Meaning, types and objectives of fieldwork; Fieldwork methods and techniques; Importance of fieldwork in geography, Field work-based report writing.

**Field Trip:** Uttarakhand, Vindhyan Plateau, Thar Desert.

**Books Recommended**


**B.Sc. Semester V. Optional Paper**

**GRB 505: Elective Theory Paper Population Geography**

Credits: 4  
Number of Lectures: 52

**Unit I**

Nature and scope of population geography; Sources and types of population data: census, sample survey and vital registration system.

**Unit II**

World population: growth, causes and consequences; Factors affecting population distribution; Migration: types and determinants; Urbanization: trends and pattern

**Unit III**

Population dynamics: fertility and mortality, age and sex structure; Occupational structure; Demographic transition theory; human resource development: indicators and patterns.
Unit IV

INDIA:- Population growth; Distribution of population; Density types; Population problems; Population Policy.

Books Recommended

B.Sc. Semester V. Optional Paper

GRB 506: Elective Theory Paper

Social Geography

Credits: 4
Number of Lectures: 52

Unit I
Meaning and scope of social geography; Concept of social space; Social differentiation and stratification; Social morphology.

Unit II
Social differentiation and region formation: Bases of social region formation; Evolution of socio-cultural regions of India; Role of race, caste, tribe, religion and languages; India — unity in diversity

Unit III
Concept of social wellbeing; Physical quality of life; Human development: concept and measurements; Rural-urban interfaces in India: health care, education and shelter; Gender issues in India

Unit IV
Public policy and social planning in India; Appraisal of Five-Year Plans and social policies in India; Social policy and planning for drought and flood prone areas; Social impact assessment of development projects

Books Recommended

B.Sc. Semester V. Optional Paper
GRB 507: Elective Theory Paper
Agricultural Geography

Credits: 4
Number of Lectures: 52

Unit I
Meaning and scope of agricultural geography; Approaches to agricultural geography; Physical, cultural and institutional factors affecting agriculture.

Unit II
Crop concentration and crop diversification; Delineation of crop combination regions; Agricultural regions of the world; Detailed study of subsistence, plantation, commercial and mixed farming.

Unit III
Agricultural land-use and carrying capacity; Land use pattern with special reference to India; Measures of agricultural efficiency and agricultural productivity.

Unit IV
Agro-climatic regions of India, Green revolution in India; Second generation reforms in Indian agriculture: Land and institutional reforms; Organic and contract farming; Agricultural planning and policies in India.

Books Recommended

**B.Sc. Semester V**

**GRB 508: Assignment-based Seminar**

Credits: 2

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**B. Sc. Part III. Semester VI**

**GRB 601. Climatology**

Credits: 4

Number of Lectures: 52

**Unit I**

Meaning and scope of climatology; Atmosphere: Composition and structure; Insolation: determinants and distribution; Temperature: Controlling factors and Distribution; Processes of heating and cooling of the atmosphere.

**Unit II**

Heat budget of earth and atmosphere; Temperature change; Air stability and its importance; Laws of Horizontal Motion and general Atmospheric Circulation, Monsoon, Jet Stream and their significance with reference to India.

**Unit III**

Precipitation: Theories of Precipitation Formation, forms and types; Air Masses: classification and modification; Fronts: source regions, types and associated weather.

**Unit IV**

Cyclones: tropical and temperate; Climatic classification: Köppen and Thornthwaite; Climatic change: evidences and theories; Global Warming: causes and consequences.

**Books Recommended**

B. Sc. Part III. Semester VI
GRB 602. Evolution of Geographical Thought

Credits: 4
Number of Lectures: 52

Unit I
The field of geography; Geography as a discipline: natural science vs. social science; Approaches to geography; Relevance of geography

Unit II
Classical contributions to geographical thought: Greek, Roman, Indian, Arab; Geography rethought: Varenius and Immanuel Kant.

Unit III
Foundations of geography: major contributions of Alexander von Humboldt, Carl Ritter, and Frederick Ratzel; Dualism and Unity in geography

Unit IV
Schools of geographical thought: French, British and American; Recent trends in geography; Evolution of geography in India: formative periods, establishments and emerging scenario.

Books Recommended
B. Sc. Part III. Semester VI
GRB 603: Practical. Geological Map and Map Projection

Credits: 4
Number of Lectures: 52

Geological Map: Conformable and folded geological structure and their description.
Map Projection: Conical: Polyconic, and Sinusoidal; Cylindrical: Gall’s and Mercator’s;
Zenithal: Gnomonic; International Map Projection

Books Recommended

B. Sc. Part III. Semester VI
GRB 604: Practical. Elementary Remote Sensing

Credits: 4
Number of Lectures: 52

Fundamentals of remote sensing; Interpretation of aerial photographs and satellite imageries; Determination of scale, Basic principles of photogrammetry; Elements of photo/image interpretation; Identification of geomorphic features from stereogram; Application of remote sensing in natural resource studies and monitoring environmental changes.

Books Recommended
B.Sc. Part III. Semester VI. Elective Theory Paper
GRB 605: Regional Development and Planning

Credits: 4
Number of Lectures: 52

Unit I.
Meaning, concepts and scope of regional development and planning; Approaches to Regional Development; Approaches to Regional Planning; Theories of regional development (Myrdal and Perroux).

Unit II
Evolution of Regional Planning in India; Concepts and types of regions; Schemes of regionalization; Macro micro planning regions of India; Multi-level planning; Participatory planning.

Unit III
Regional development in India: patterns and imbalances; Planning for regional development; Role of agriculture, industry and infrastructure (transport and power) in regional development.

Unit IV
Area development and planning: National Capital Region; Local-level planning and Panchayati Raj; Planning for Eastern Uttar Pradesh and North-East India.

Books Recommended
B.Sc. Part III. Semester VI. Elective Theory Paper
GRB 606: Political Geography

Unit I
Meaning, approaches, historical development, recent trends in political geography; geopolitics.

Unit II
Nations, states and nation states; Frontiers and boundaries; Capital cities, core and periphery regions.

Unit III
Geographical basis of international relations; Conflict resolution; Strategic locations, routes and raw material; Geostrategic regions of the world; Theories of Heartland and Rimland

Unit IV
Geopolitical and geo-economic significance of: - Indian Ocean, West Asia and Central Asia; Problems of nation building in India; Geopolitics of energy and resources.

Books Recommended

B.Sc. Part III. Semester VI. Elective Theory Paper
GRB 607: Industrial Geography

Unit I
Meaning and scope of industrial geography; Industrialization; Concept of industrial revolution with reference to Britain and India.

Unit II
Factors of industrial location; Theories of industrial location: Weber, Hoover, Lösch and Smith.

Unit III
Distribution, growth, production trends and problems of: iron and steel, cotton textile, and sugar industries; Industrial policies in India; Role of industries in regional development.

Unit IV
Concept and methods of industrial regionalization; Major industrial regions of the world; Structure of major industrial complexes: Mid -Atlantic coastal region of USA, Rühr Industrial region, Mumbai -Ahmedabad industrial region.
Books Recommended

B.Sc. Part III. Semester VI.
GRB 608. Assignment-based Seminar
(Papers offered in VI Semester)

Credits: 2