Four-Year Undergraduate Programme in Geography
Gauhati University

Eligibility Criteria of the programme, if any: For B.A. programme No Precondition, For B.Sc. programme 10 + 2 with Science

Semester	Course name	Major/Minor	Course code	Credits	Credit distribution of the course			Pre-requisites of the course (if any)	Internal marks	External Marks
					L	T	P			
I	Introduction to Physical Geography	**Major 1 & Minor1 (for Minor stream) & Minor 1 (*For Major in other subjects*)**	GGY 0100104	4	4	0	0	No	40	60
II	Introduction to Human Geography	**Major 2 & Minor2 (for Minor stream & Minor 2 (*For Major in other subjects*)**	GGY 0200104	4	4	0	0	No	40	60
III	Geography as a Spatial Science	**Major 3 & Minor3 (for Minor stream)**	GGY 0300104	4	4	0	0	No	40	60
III	Geography of Disaster	**Major 4 & Minor4(For Minor stream) & Minor 3 (*for Major in other subjects*)**	GGY0300204	4	4	0	0	No	40	60
IV	Geomorphology	**Major 5**	GGY 0400104	4	3	0	1	No	30	T-45 P-25
	Geography of India	**Major6 & Minor5 (for Minor stream) & Minor 4 (*For Major in other subjects*)**	GGY 0400204	4	3	0	1	No	30	T-45 P-25
	Cartographic Techniques	**(Major7)**	GGY 0400304	4	3	0	1	No	30	T-45 P-25
	Population and Settlement Geography	**Major 8 & Minor6 (for Minor stream)**	GGY0400404	4	3	0	1	No	30	T-45 P-25

V	Climatology, Biogeography and Oceanography	**Major 9 & Minor 7 (for Minor stream) & Minor 5 (*For Major in other subjects*)**	GGY 0500104	4	3	0	1	No	30	T-45 P-25
	Quantitative methods in Geography	**Major 10**	GGY 0500204	4	3	0	1	No	30	T-45 P-25
	*Economic and Resource Geography	**Major 11 & Minor 8(for Minor stream) *(Choose any one of these two papers)**	GGY 0500304	4	3	0	1	No	30	T-45 P-25
	*Social, Cultural and Political Geography		GGY 0500404	4	3	0	1	No	30	T-45 P-25
	Internship		GGY 0500504	4				No		100
VI	Geography of Environment and Development	**Major 12 & Minor 9 (for Minor stream)**	GGY 0600104	4	3	0	1	No	30	T-45 P-25
	Introduction to Remote Sensing and GIS	**Major13**	GGY 0600204	4	3	0	1	No	30	T-45 P-25
	Urban Geography	**Major14 & Minor 10 (for Minor stream)**	GGY 0600304	4	3	0	1	No	30	T-45 P-25
	*Surveying Techniques	**Major 15 & Minor 11(for Minor stream) & Minor 6 (*For Major in other subject)* *(Choose any one of these two papers)**	GGY 0600404	4	3	0	1	No	30	T-45 P-25
	*Geography of North East India		GGY 0600504	4	3	0	1	No	30	T-45 P-25

Four Year Under-Graduate Programme

Subject: Geography
Semester: IV
Course Name: **Geomorphology**
Course Code: GGY0400104
Course Level: Intermediate
Part I: Theory (3 Credits, 45 classes of one-hour duration)
Part II: Practical (1 Credit, 15 classes of two-hours duration)
100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objectives:

1. To provide a general idea about the topographic and surficial characteristics of the earth's surface to the students.
2. To make students aware of the forms and patterns of diverse landforms indifferent physical settings of the earth.
3. To make students skilled for applying geomorphic knowledge and techniques for Investigating geomorphic processes and the resultant landforms.

Course outcome:

1. Understand the history, development and recent trends in Geomorphology.
2. Identify the major branches of Geomorphology and understand their significance.
3. Gain knowledge about the structure and composition of the Earth, including its crust and interior, and rocks and minerals.
4. Evaluate fundamental theories and concepts of Geomorphology.
5. Assess Geomorphic Processes and Resultant Landforms, understand Endogenetic and Exogenetic processes, Ideas of Penck and L C King, Fluvial, Glacial and Aeolian Processes and Resultant Landforms.

Part I

Unit I:
History and Development of Geomorphic Ideas, Recent Trends in Geomorphology, Post-modern Geomorphology

Unit II:
Branches of Geomorphology and their Significance: Theoretical and Applied Geomorphology, Majorbranches- Structural, Fluvial, Glacial, Arid, Environmental and Paleogeomorphology.

Unit III:
Structure and Composition of the Earth: Earth Crust and Interior, Rocks and Minerals

Unit IV:
Fundamental Concepts and Theories of Geomorphology: System Concept- Steady State, Dynamic Equilibrium, Mountain Building Theories of Kober and Holmes, Continental Drift, Plate tectonicsand Isostasy.

Unit V:
Geomorphic Processes and Resultant Landforms: Endogenetic and Exogenetic Processes, Ideas of Penck and L C King, Fluvial, Glacial and Aeolian Processes and Resultant Landforms, Slope Forming Processes.

Part II

Unit I: Practical works (16 marks) two questions of 8 marks each

1. Study of Topographical Maps: Topographical map content and numbering system, the General interpretation of toposheets in respect of physical characteristics. (3 Assignments)
2. Profile Drawing (serial, superimposed, projected and composite (3 Assignments)
3. Preparation of Slope Map / Relative Relief Map: Wentworth's method and Smith's method. (3 Assignments)
4. Delineation of drainage basin and drainage network, construction of cross and long profiles, stream ordering by Horton and Strahler's method (6 Assignments)
5. Interpretation of Geological map and Construction of cross –section (Two geological maps including one with interruptions) showing different sedimentary beds. (2 Assignments)

Unit II: Practical Note-Book and Viva-voce (9 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (4 marks)

Reading List

1. Bloom, Arther L. (1978): Geomorphology- A Systematic Analysis of Late Cenozoic Land-forms, Prentice Hall, Englewood Cliffs, N.J.
2. Charlton, R. (2008) : Fundamentals of Fluvial Geomorphology, Routledge, USA and Canada.
3. Chorley, Richard J (1972): Spatial Analysis in Geomorphology, Harper and Row Publishers,New York, London.
4. Chorley, Richard J (ed) (1969): Water, Earth and Man, Methuen & Co.London. 5. Cooke, R.U and Warren, A. (1973): Geomorphology in Deserts, Bats ford, London
5. Crickmay, C.H. (1974): Works of River, The McMillan Press Ltd, London.
6. Davidson-Arnott , R., Bauer, B. and Houser, C. (2019): Introduction to Coastal Processesand Geomorphology, Cambridge University Press.
7. Derbishire, E. (ed) (1976): Geomorphology and Climate, Wiley, London 9. Dury, G.H. (1959): The Face of the Earth, Penguin Books.
8. Embelton, C. and Thorns, J. (1979): Processes in Geomorphology, Arnold Heinemann.
9. Gabler, R.E., Pettersen, J.F. and Trapasso, L.M. (2007): Essentials of Physical Geography,Thomson Brooks, USA.
10. Gregory, K.J. (1985): The Nature of Physical Geography, Edward Arnold, London.
11. Gutierrez, M. (2018): Geomorphology, CRC Press.

12. Heckmann, T. and Morche, D. (ed) (2019): Geomorphology of Proglacial Systems, Springer.
13. Huggett, R.J. (2018): Fundamentals of Geomorphology, 4th Edition, T F India and Routledge.
14. Hails, J.R. (ed) (1978): Applied Geomorphology, Elsevier Scientific Publishing Co., Oxford,New York.
15. Kale, V.S. (2023): Processes, Products and Cycles of Tectonic Geomorphology, Elsevier.
16. Leopold, L.B., Wolman M.G. and Miller, J.P. (1964): Fluvial Processes in Geomorphology,Freeman, San Francisco.
17. Morisawa, M.M. (ed) (1981): Fluvial Geomorphology, George Allen & Unwin, London.
18. Morisawa, M.M. (1985): River Forms and Process, Longman, London and New York.
19. Pitty, A.F. (1971): Introduction to Geomorphology, Barnes and Nobel, New York.
20. Richards, K. (1982: Rivers: Forms and Process in Alluvial Channels, The Blackburn Press,USA.
21. Sharma, H.S. (1982): Perspectives in Geomorphology, Vols I to IV, Concept, New Delhi.
22. Strahler, A.N. (2013): Introducing Physical Geography, 6th Edition, Wiley India Pvt. Ltd,New Delhi.
23. Thornbury, W.D. (1969): Principles of Geomorphology, Wiley International Edition.
24. Thomas, David S.G. and Goudie, A. (2000): The Dictionary of Physical Geography, Blackwellpublishing.
25. Wohl, E. (2020): Rivers in the Landscape, Wiley Blackwell.

Theory Credit : 3
Practical Credit: 1
No. of Required Classes : 60
No. of Contact Classes: 40
No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography
Semester: IV
Course Name: **Geography of India**
Course Code: GGY0400204
Course Level: Intermediate
Part I: Theory (3 Credits, 45 classes of one-hour duration)
Part II: Practical (1 Credit, 15 classes of two-hours duration)
100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objectives:
This is a core paper that intends to introduce students to India as a geographical entity. It seeks to develop new insights among students on the geographical dimensions of the country. A field study is incorporated to make the students understand the regional diversity of India with respect to its land, people, and economy.

Course outcome:

1. Understand and evaluate the significance of India's geographical location and administrative divisions.
2. Analyze and interpret the physical features of India, including climate, vegetation, soil types and distribution.
3. Investigate and evaluate India's population trends, linguistic and religious composition, and spatial variations.
4. Evaluate and predict trends in India's agricultural and industrial sectors with a focus on resource distribution and production.
5. Evaluate India's socio-economic development trends, health status, education status, and trade relations.

Part I

Unit I:
India’s location, areal extent and their significance; geopolitical and strategic importance, administrative divisions.

Unit II:
Physical setting: Physiographic divisions and their characteristics; River and water bodies, Climate and its seasonal and regional characteristics; soil types and their distribution; vegetation and its distribution.

Unit III:
Population: Trend of growth, spatial variation in growth and distribution; Age and sex composition; Linguistic and religious composition. 12

Unit IV:
Trend of Socio-economic development: literacy and education; health status and health care facilities; transport and communication systems; trade relations (export and import; development policies)

Unit V:
Agricultural and Industrial sector: Regional distribution and production patterns of rice, wheat, and millet. Distribution and production patterns of iron and steel, cotton textiles and fertilizers; overall Industrial development scenario in the country: distribution and production scenerio of Coal, Petroleum, Gas, hydro-power, potentiality of solar, wind, and nuclear power generation.

Part II

Unit I: Practical Works (12 marks)(Two questions of 6 marks each)

1. Trend of population growth and growth rates in India since 1901 using Census data (Source: censusindia.gov.in). (2 assignments)
2. Choropleth mapping to show spatial variation in decennial population growth rate and literacyrate in India. (2 assignment)
3. Spatial variation in the patterns of the religious composition of the population in India and Social composition of the population (SC, ST, and General) using pie-graph. (2 assignments)
4. Trend of food grains production (Rice, Wheat, Maize, Barley, Jowar, and Bajra) in Indiasince 1950-51 using band-graph. (1 assignment)
5. Mapping of the population distribution of India and analysis of its relationship with relief.(1 assignment)
6. Flow pattern of selected commodities in India using standard carto-statistical techniques. (1 assignment)

Unit II: Field Report (5 Marks)

Preparation of field report based on a field study of observational knowledge about the geographical perspective of any part of the country or from the parts of NE India under the guidance of teacher(s).

Unit III: Practical Note-Book and Viva-voce (8 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (3 marks)

Reading List

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, NewDelhi.
2. Johnson,B.L.C.,ed.2001.GeographicalDictionaryofIndia.VisionBooks,NewDelhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Vol. 3 –Indian perspective.
4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India

5. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
7. Singh, Jagdish 2003: India - A Comprehensive & Systematic Geography, Gyanodaya Prakashan,Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and RegionalGeography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., Jaipur & New Delhi.
10. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. RegionalScience Assoc.,Kolkata.
11. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan,Allahabad. 12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

Theory Credit : 3
Practical Credit: 1
No. of Required Classes : 60
No. of Contact Classes: 40
No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography
Semester: IV
Course Name: **Cartographic Techniques**
Course Code: GGY0400304
Course Level: Intermediate
Part I: Theory (3 Credits, 45 classes of one-hour duration)
Part II: Practical (1 Credit, 15 classes of two-hours duration)
100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:
This course on Cartographic Techniques provides a general understanding of the field of cartography including its modern developments and importance in geographic study. It more particularly focuses on various types of map scale and their construction; principles of map projection and construction of selected few; and preparation of thematic maps through the representation of various geographical data using different cartographic techniques.

Course Outcome:

1. Understand and trace the evolution of Cartography, focusing on its significance in geography. 2. Devise point, line, and area data representations in different map types while discerning map characteristics and scale.
2. Formulate zenithal, conical, and cylindrical projections effectively, dictating their choice, use, and limitations.
3. Distinguish between different types of thematic maps, and apply the concepts of Isopleth and Choropleth mapping.
4. Comprehend the shape, size of earth and the coordinate systems.

Part I

Unit I:
Cartography – Meaning, Development (Traditional and Modern Cartography) and Importance of Cartography in Geography.
Unit II:
Shape and size of the earth; coordinate system (latitude, (parallel) and longitude (meridian)).
Unit III:
Map: Characteristics, types, scale and content; Representation of point, line and area data in maps.
Unit IV:
Map Projections: Concept of Map Projection, Classification of Map Projection; principles of Constructing zenithal, conical and Cylindrical projections (basic idea), Choice of Map projection. with reference to an areal extent (whole world or any specific part) uses and limitations.
Unit V:
Thematic mapping: Concept and types; Isopleth and Choropleth mapping.

Part II

Unit I: Practical Works (16 marks) (Two questions of 8 marks each)

1. Construction of graphical scale (linear, diagonal and comparative); conversion of map scale (6 Assignments)
2. Construction of graticules of Zenithal Polar Gnomonic and Stereographic, Simple Conical with one standard parallel, Bonne's conical, and Gall's Stereographic Cylindrical projection along with their properties, uses and limitations. (5 Assignments)
3. Preparation of thematic maps (choropleth, isopleths, band graph, pie diagram) for representing various physical and human geographic geographic data. (4 Assignments)

Unit II: Practical Note-Book and Viva-voce (9 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (4 marks)

Reading List

1. Anson, R. and Ormelling, F. J., 1994: International Cartographic Association: Basic Cartographic Vol., Pergaman Press.
2. Gupta, K.K. and Tyagi, V.C.,1992: Working with Map, Survey of India, DST, New Delhi.
3. Misra, R.P. and Ramesh, A.,1989: Fundamentals of Cartography, Concept, New Delhi.
4. MonkhouseF.J.andWilkinsonH.R.,1973:MapsandDiagrams,Methuen,London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson, A.H., 2009: Elements of Cartography,John Wiley and Sons, NewYork.
7. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015): Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
9. Singh, L.R., 2013: Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
10. Talukder, S., 2008: Introduction to Map Projections, EBH Publishers (India),Guwahati.

Theory Credit : 3
Practical Credit: 1
No. of Required Classes : 60
No. of Contact Classes: 40
No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)

Four Year Under-Graduate Programme

Subject: Geography
Semester: IV
Course Name: **Population and Settlement Geography**
Course Code: GGY0400404
Course Level: Intermediate
Part I: Theory (3 Credits, 45 classes of one-hour duration)
Part II: Practical (1 Credit, 15 classes of two-hours duration)
100 Marks (Theory =45 Marks, Practical=25 Marks, Internal Assessment = 30 Marks)

Course Objective:

1. This paper is a generic paper that intends to introduce students to the basic concepts of population and settlement geography and how the differential characteristics of population and settlement influence the overall development process of an area.
2. It seeks to develop an understanding among students about the significance of population geography and settlement geography and their inter-relationship.

Course Outcome:

1. Understand and explain the field of population geography, its correlation with demography, and the components of population growth
2. Recognize global patterns of population distribution, density, and the factors influencing them
3. Analyze various theories of population growth, and assess their relevance in current global contexts
4. Interpret and explain the field of settlement geography, understand settlement hierarchy and apply it to rural and urban settlements
5. Demonstrate practical knowledge of population trends and spatial patterns through graphical representation and map reading skills.

Part I

Unit I: Population Geography

1. Defining the field of population geography and Population data: Meaning, emergence as a systematic branch of geography and significance; its relation with demography; Sources of population data and perspectives on Census of India publications (5 Classes)
2. Distribution and density of population: Factors influencing population distribution and density; global pattern of population distribution. (4 Classes)
3. Population Growth: Trend of global population growth; components of population growth– fertility,mortality and migration; push and pull factors of migration; spatial variations in population growth in the world. (8 Classes)
4. Theories of population growth: Malthusian Theory and Demographic Transition Theory. (3Classes)

5. Population composition and associated characteristic patterns in global contexts: Age-SexComposition; Rural-Urban Composition; Population ageing. (6 Classes)

Unit II: Settlement Geography

1. Defining the field of settlement of geography: Meaning and scope.
2. Rural and urban settlements: Factors influencing distribution pattern of settlements; Types of rural settlements; Morphology and Characteristics of rural and urban settlements. (7 Classes)
3. Concept of settlement hierarchy and urban fringe; Christaller's Central Place Theory. 4Classes)

Part II

Unit 1: Practical Works (16 marks)(Two questions of 8 marks each)

1. Trend of population growth in Assam/N.E. India through line graph; Calculation and graphical representation of trend of decadal growth rates of population in Assam/N.E. India/India. (2 Exercises)
2. Choropleth map to show spatial pattern of decadal variation in population growth in Assam/N.E. India/India. (1 Exercise)
3. Choropleth map showing spatial pattern of population density in Assam/India. (1 Exercise)
4. Map showing spatial variation in social/religious/rural-urban composition of population in Assam/N.E. India using pie-graph. (1 Exercise)
5. Choropleth map showing spatial pattern of level of urbanization in Assam/N.E. India. (1 Exercise)
6. Flow cartogram showing direction and volume of migration into Assam/N.E. India from different parts of India. (1 Exercise)
7. Map showing distribution of towns and their varied population size with spheres in Assam/N.E.India. (1 Exercise)

Unit II: Practical Note-Book and Viva-voce (9 Marks)

1. Evaluation of Practical Note-Book (5 marks)
2. Viva-voce (4 marks)

Reading List

1. Barrett H. R., 1995: Population Geography, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House.
3. Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Chandna R. C., 2014, Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.
5. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
6. Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.

7. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth inthe 21st Century, Earthscan.
8. Newbold, K. B., 2009: Population Geography: Tools and Issues, Rowman and LittlefieldPublishers.
9. Pacione, M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
10. Wilson, M. G. A., 1968: Population Geography, Nelson.
11. Panda, B. P. (1988): Janasankya Bhugol, M P Hindi Granth Academy,Bhopal.
12. Maurya, S. D. (2009) Jansankya Bhugol, ShardaPustakBhawan, Allahabad.
13. Chandna, R. C. (2006), Jansankhya Bhugol, Kalyani Publishers, Delhi.
14. Roy, D. (2015), Population Geography, Books and Allied (P) Ltd., Kolkata.
15. Ahmad, A., Noin, D. and Sharma, H.N. (eds), 1997, Demographic Transition: The ThirdWorld Scenario, Rawat Publications, Jaipur and New Delhi, 1997.
16. Money, D.C., 1972: Patterns of Settlement, Evan Brothers, London.
17. Peters, G.L. and Larkin, R.P., 1979: Population Geography: Problems, Concepts and-Prospects, Kendall/ Hunt Iowa.
18. Singh, R.L. and Singh, K.N., (eds), 1975: Readings in Rural Settlement Geography, BHU,Varanasi.
19. Singh, R.Y., 1994: Geography of Settlements, Rawat Publications, Jaipur and New Delhi.
20. Maurya, S. D., 2014: Settlement Geography, Sharda Pustak Bhawan, Allahabad.

Theory Credit : 3
Practical Credit: 1
No. of Required Classes : 60
No. of Contact Classes: 40
No. of Non-Contact Classes : 20

Particulars of Course Designer (Department of Geography, Gauhati University, geography@gauhati.ac.in)