

Syllabus for
BA/B.Sc.(Regular) Geography
Choice Based Credit System (CBCS)
Course effective from the academic year 2019-20

This is approved in the Academic Council held on 8/11/2019



GAUHATI UNIVERSITY
Guwahati-781014
June, 2019

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Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester I Credit:22 Marks:400	Compulsory paper (for Arts Stream)	ENG-CC-1016	English Compulsory paper	6	100
	Ability enhancement Course	ENG-AE-1014/ ASM-AE-1014	English Communication Paper, Assamese/ MIL Communication paper	4	100
	Regular Core (Geography)	GGY-RC-1016	Physical Geography	4+2=6	100
	Regular Core 1(other subject)	YYY-RC-1016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-1016	Subject Z	6	100
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Semester II Credit: 22 Marks: 400	Compulsory paper (for Arts Stream)	ENG-CC-2016	English Compulsory paper	6	100
	Ability enhancement Course	ENV-AE-2014	Environmental Science	4	100
	Regular Core (Geography)	GGY-RC-2016	Human Geography	4+2	100
	Regular Core 1(other subject)	YYY-RC-2016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-2016	Subject Z	6	100
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Semester III Credit: 22 Marks: 400	Compulsory paper (for Arts Stream)	ASM - CC – 3016	Assamese/MIL Compulsory paper	6	100
	(any one)	ALT- CC- 3016	Alternative English Compulsory Paper	6	100
	Regular Core (Geography)	GGY - RC - 3016	Economic Geography	4+2	100
	Regular Core 1(other subject)	YYY-RC-3016	Subject Y	6	100

B.A./B.Sc.(General)Geography-CBCS

	Regular Core 2(other subject) for science stream	ZZZ-RC-3016	Subject Z	6	100
	Skill Enhancement Course (Any one)	GGY-SE-3024	Regional Development and Planning	2+2	100
		GGY-SE-3034	Thematic Cartography	2+2	100
Semester IV Marks 400 Credit 22	Compulsory paper (for Arts Stream)	ASM - CC – 4016	Assamese/MIL Compulsory paper	6	100
	(any one)	ALT- CC- 4016	Alternative English Compulsory paper	6	100
	Regular Core (Geography)	GGY - RC - 4016:	Geography of India with special reference to N.E. India	4+2	100
	Regular Core 1(other subject)	YYY-RC-4016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-4016	Subject Z	6	100
	Skill Enhancement Course (Any one)	GGY-SE-4024	Surveying Techniques	2+2	100
		GGY-SE4034	Remote Sensing, GIS and GPS	2+2	100
Semester V Marks 400 Credit 22	Discipline Specific Elective 1	GGY - RE - 5016:	Environmental Geography and Disaster Management	4+2	100
	Discipline Specific Elective 2 (any one)	GGY - RE - 5026:	Cartographic and Quantitative Techniques	4+2	100
	Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY - RE - 5036:	Population and Settlement Geography	4+2	100
	Skill Enhancement Course (Any one)	GGY-SE-5044	Computer aided Data Analysis and Graphical Presentation	2+2	100
		GGY-SE-5054	Geography of Tourism	2+2	100

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Semester VI Marks 400 Credit 22	Discipline Specific Elective 1	GGY-RE-6016:	Social and Political Geography	4+2	100
	Discipline Specific Elective 2 (any one)				
		GGY-RE-6026	Geography of Resources and Development	4+2	100
	Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY-RE-6036:	Geography of Health	4+2	100
	Skill Enhancement Course (Any One)	GGY-SE-6044	Field Techniques and Project work	2+2	100
		GGY-SE-6054	Environmental Impact Assessment	2+2	100

Syllabus for
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1st Semester

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GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

B.A./B.Sc. (General) Geography - CBCS

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester I Credit:22 Marks:400	Compulsory paper (for Arts Stream)	ENG-CC-1016	English Compulsory paper	6	100
	Ability enhancement Course	ENG-AE-1014/ ASM-AE-1014	English Communication Paper, Assamese/ MIL Communication paper	4	100
	Regular Core (Geography)	GGY-RC-1016	Physical Geography	4+2=6	100
	Regular Core 1(other subject)	YYY-RC-1016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-1016	Subject Z	6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal		Attendance	
						Theory	Practical	Sessional	Practical /Assignments		
Geography	1	Regular Core	GGY-RC- 1016	Physical Geograp hy* (Theory+ Practical)	100	60	20	10	6	4	4+2=6

Core Course
CBCS-based U.G. Course in Geography, 2019
Syllabus of Regular Core Paper

Course Name: Physical Geography
Paper Code: GGY-RC-1016
Total Credit: 6 (4+2)
Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives:

- To provide a general idea about the topographic and surficial characteristics of the earth's surface to the students.
- To make the students aware of the dynamic geomorphic processes responsible for the development of landforms of varied types and nature.
- To impart applied scientific knowledge on landform development based on geomorphic concepts, principles and theories.

Course outcomes:

- The students will learn that the earth is unstable and it is undergoing constant changes due to dynamic earth's processes.
- The students will come to know about the meaning and scope of geomorphology, which is a major branch of Physical Geography.
- After gaining knowledge based on the contents embodied in this paper, the students will be able to realize the importance of geomorphological knowledge as applied in various developmental activities executed on the land and over the earth's surface.

Part I: Theory
Credit: 4 (60 Marks)
(40 classes of 1 hour duration each)

1. Physical Geography – Definition and Scope, Components of Earth System. **(8 classes)**
2. Atmosphere – Composition and the vertical structure, Heat Balance, Global Circulation Pattern, Monsoon, Koppen's Climatic Classification. **(12 classes)**
3. Lithosphere – Internal Structure of Earth based on Seismic Evidence **(8 classes)**
4. Endogenetic and Exogenetic processes, Work of River, Fluvial Cycle of Erosion – Davis **(12 classes)**

**Part II: Practical
Credit: 2 (20 Marks)**

(20 classes of 2 hour duration each)

Unit 1: Practical works (16 marks)

(2 Questions of 8 marks each)

1. Relief representation from the topographical sheet (v-shaped valley, u-shaped valley, conical hill, cliff, uniform slope). **(8 Assignments)**
2. Profile Drawing (Serial and superimposed). **(4 Assignments)**
3. Rainfall-Temperature Graph, Climograph and Hythergraph **(4 Assignments)**

Unit 3: Practical Note-Book and Viva-voce (4 Marks)

1. Evaluation of Practical Note-book (2 Marks)
2. Viva-voce on Practical Works (2 Marks)

Reading List:

1. Conserva H. T., 2004: Illustrated Dictionary of Physical Geography, Author House, USA.
2. Gable R. E., Petersen J. F. and Trapasso, L. M., 2007: Essentials of Physical Geography (8th Edition), Thompson, Brooks/Cole, USA.
3. Garrett N., 2000: Advanced Geography, Oxford University Press.
4. Goudie, A., 1984: The Nature of the Environment: An Advanced Physical Geography, Basil Blackwell Publishers, Oxford.
5. Hamblin, W. K., 1995: Earth's Dynamic System, Prentice-Hall, N.J.
6. Husain M., 2002: Fundamentals of Physical Geography, Rawat Publications, Jaipur.
7. Monkhouse, F. J. 2009: Principles of Physical Geography, Platinum Publishers, Kolkata.
8. Strahler A. N. and Strahler A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York.

Syllabus for
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IIInd Semester

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June, 2019

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester II Credit: 22 Marks: 400	Ability enhancement Course	ENV-AE-2014	Environmental Studies	4	100
	Regular Core (Geography)	GGY-RC-2016	Human Geography	4+2=6	100
	Regular Core 1(other subject)	YYY-RC-2016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-2016	Subject Z	6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	II	Regular Core	GGY-RC-2016	Human Geography * (Theory + Practical)	100	60	20	10	6	4	4+2=6

Core Course

CBCS-based U.G. Course in Geography, 2019

Syllabus of Regular Core Paper

Course Name: Human Geography

Paper Code: GGY-RC-2016

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives:

- This paper is a core paper that intends to introduce students to human geography and how humankind transforms and gets transformed by geographicspace.
- It seeks to develop new insights among students on the relevance of human-environmental relationships and how a spatial perspective shapes these relationships.

Course outcomes:

- The paper will be useful for students in developing ideas on human-environment issues that geographers usually address in the anthropocene.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Field of human geography: meaning, scope and importance. **(8classes)**
2. Concept of man-environment relationship: Determinism and Possibilism. **(8classes)**
3. Impact of environment on man; impact of man on environment; population growth and environmental changes; house types in different environmental conditions. **(10classes)**
4. Global patterns of racial, religious and linguistic composition of population. **(7classes)**
5. Origin, growth and characteristics of rural and urban settlements; Patterns of rural settlements; Patterns of urbanization in India and N.E. India. **(7classes)**

Part II: Practical

Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit 1 (Practical Works): 16 Marks

(2 Questions of 8 marks each)

1. Traditional house types of selected ethnic groups of North-East India. **(1 assignment)**
2. Trend of population growth in the world in relation to five most populous countries of the world using line graph.. **(1assignment)**

3. Religious composition of population in the world and three most populous countries of the world using pie-graph. **(2 assignments)**
4. Spatial patterns of urban population in Assam and N.E. India at state level through choropleth map. **(2 assignments)**
5. Drawing of major rural settlement types/patterns; Morphological diagram of a village and a town (preferably based on student's own village and town). **(3 assignments)**

Unit 2 (Practical Note-Book and Viva-voce): 4 Marks

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

Reading List:

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
3. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
4. Johnston R.; Gregory D., Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
5. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
7. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
8. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan, Allahabad.
9. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur.

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IIIrd Semester

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GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester III Credit: 22 Marks: 400	Compulsory paper (for Arts Stream)	ASM - CC – 3016	Assamese/MIL Compulsory paper	6	100
	(any one)	ALT- CC- 3016	Alternative English Compulsory Paper	6	100
	Regular Core (Geography)	GGY - RC - 3016	Economic Geography (Theory + Practical)	4+2	100
	Regular Core 1(other subject)	YYY - RC - 3016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ - RC - 3016	Subject Z	6	100
	Skill Enhancement Course (Any one)	GGY-SE-3024	Regional Development and Planning (Theory + Practical)	2+2	100
GGY-SE-3034		Thematic Cartography (Theory + Practical)	2+2	100	

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	III	Regular Core	GGY-RC-3016	EconomicGeography * (Theory +Practical)	100	60	20	10	6	4	4+2=6
Geography	III	Skill Enhancement Course	GGY-SE-3024	Regional Development and Planning * (Theory + Practical)	100	40	40	10	6	4	2+2=4
Geography	III	Skill Enhancement Course	GGY-SE-3034	Thematic Cartography * (Theory + Practical)	100	40	40	10	6	4	2+2=4

Core Course
CBCS-based U.G. Course in Geography, 2019
Syllabus of Regular Core Paper
Course Name: Economic Geography
Paper Code: GGY-RC-3016
Total Credit: 6 (4+2)
Total Marks 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- This is a regular core paper with a view to make the students understand the basic principles of economic geography and associated patterns and processes of major economic activities in the world.
- It seeks to develop insights among the students about the relevance of studying economic geography and understanding contemporary economic problems from geographical perspectives.

Course Outcomes:

- This paper will be useful for the students in developing understanding on how geographical factors organize economic space, and to acquire knowledge about spatial patterns of various economic activities on the earth.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Meaning and scope of Economic Geography. **(3 classes)**
2. Economic activity: meaning and classification; Production system: Role of land, labour and capital; Resource: Concept and classification. **(6 classes)**
3. Agriculture: Factors influencing agriculture; types of agriculture; Factors influencing cultivation of wheat, rice and tea, and their distribution and production in the world. **(10 classes)**
4. Manufacturing: Factors influencing industrial location; types of industry; Factors, distribution and production of iron and steel and cotton textile industry in the world. **(10 classes)**
5. Transport system: Modes of transport, factors influencing transport development and role of transport in resource mobilization and industrial development. **(6 classes)**
6. Trade: Factors influencing trade; Trade relations of India with the countries like Bhutan, Nepal and Bangladesh. **(5 classes)**

Part II: Practical
Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit 1 (Practical Works): 16 Marks

(2 Questions of 8 marks each)

1. Trend of rice, wheat and iron & steel production in the world/India since 1960 using moving average method. **(3 assignments)**
2. Trend of production of wheat, rice, maize and barley in the world/India since 1960 using Band-graph. **(2 assignments)**
3. Trend of balance of trade relations (export and import value) of India with Bangladesh, Nepal and Bhutan in respect of major commodities since 1990 using Bar-graph. **(2 assignments)**
4. Regional variation in fertilizer consumption and agricultural productivity in rice, wheat and barley in selected countries of the world using Bar-graph. **(1 assignment)**
5. Inter-state and Inter-nation volume of movement of selected commodities through flow cartogram. **(2 assignments)**

Unit 2 (Practical Note-Book and Viva-voce): 4 Marks

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

Reading List:

1. Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
3. Hodder B. W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
5. Wheeler J. O., 1998: Economic Geography, Wiley.
6. Durand L., 1961: Economic Geography, Crowell.
7. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
8. Willington D. E., 2008: Economic Geography, Husband Press.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford.
10. Saxena, H.M., 2013: Economic Geography, Rawat Publications, Jaipur.

Skill Enhancement Course

CBCS-based U.G. Course in Geography, 2019

Syllabus of Skill Enhancement Paper

Course Name: Regional Planning and Development

Paper Code: GGY–SE-3024

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course Objectives:

- This is a skill paper for geography regular students with a view to introduce students to the rationale underlying the relevance of regional planning for balanced regional development.
- It seeks to develop new insights among students on the issue of development and disparities among geographical regions.

Course Outcomes:

- The paper will be useful for students in developing ideas on disparities within and between countries and their fallout.
- The paper will help provide theoretical insights and perspectives to students if they wish to pursue a research programme in future.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Concept of region and regional development; types of region (formal, functional and ad-hoc); concept of regionalization. **(4Classes)**
2. Regional development planning and its need; levels of regional planning (macro, meso and micro). **(4Classes)**
3. Characteristics of an ideal planning region; Planning regions of India with special reference to Agro-Ecological regions. **(4Classes)**
4. Theories and models in regional planning: Growth Pole Model of Perroux; Friedmann's core-periphery model; Myrdal's cumulative causation theory; Rostow's Growth Model and their relevance in Indian context. **(6Classes)**
5. Concept of development and measuring development; Indicators for measuring development level (Economic, Social and Environmental); Human Development Index; Role of NEC in the development of north-east region. **(2Classes)**

Part II: Practical

Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

(To attempt 3 questions in total, 2 carrying 12 marks each and one carrying 8 marks)

1. Regionalization using methods of (a) Overlapping of different themes and (b) Ranking using mean and standard deviation. **(3 Assignments)**
2. Demarcation of functional (urban influence) zone using Reilly's breaking point formula. **(1 Assignment)**
3. Mapping regional disparity in socio-economic development in India at state/UT level using Simple Composite Index and Ranking Index **(2 Assignments)**
4. Determination of road network connectivity of North-East India (state level) and Assam (regional level) using alpha, beta and gamma indices. **(2 Assignments)**
5. Identification of resource rich and resource poor regions in N.E. India (state level) based on availability of selected major resources in relation to population using simple composite index and ranking index. **(2 Assignments)**
6. Mapping regional variation in level of agricultural development in N.E. India (at state level)/Assam (district level) using ranking index. **(2 Assignments)**

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

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

Reading List:

1. Blij H. J. De, 1971: *Geography. Regions and Concepts*, John Wiley and Sons.
2. Claval P. I., 1998: *An Introduction to Regional Geography*, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann, J. and Alonso, W. (1975): *Regional Policy - Readings in Theory and Applications*, MIT Press, Massachusetts.
4. Gore C. G., 1984: *Regions in Question. Space, Development Theory and Regional Policy*, Methuen, London.
5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: *Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention*, Metropolis-Verlag, Marburg.
6. Haynes J., 2008: *Development Studies*, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: *The Organization of space in Developing Countries*, MIT Press, Massachusetts.
8. Peet R., 1999: *Theories of Development*, The Guilford Press, New York.
9. UNDP 2001-04: *Human Development Report*, Oxford University Press.
10. World Bank 2001-05: *World Development Report*, Oxford University Press, New York.

Skill Enhancement Course
CBCS-based U.G. Regular Course in Geography, 2019
Syllabus of Skill Enhancement Course
Course Name: Thematic Cartography
Paper Code: GGY-SE-3034
Total Credit: 4 (2+2)
Total Marks: 100
(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course Objectives:

This course on thematic cartography provides a general understanding of methods and techniques and importance in geographic study. It more particularly focuses on various themes of cartographic techniques; principles of different types of symbols, methods for preparation of maps or plan in different environment and representation of various features of the earth's surface using different cartographic techniques.

Course Outcomes:

- Understanding the importance of various techniques of preparation of maps in geographical study
- General understanding of preparation of different types of plan and maps.
- An acquaintance of different cartographic techniques for representation of various facets of earth's surface.

Part I: Theory
Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Thematic cartography: Meaning and importance. **(3classes)**
2. Thematic Mapping: Principles and techniques of representation of physical and human geographic data (point, line, polygon). **(5classes)**
3. Concepts and principles of cartographic overlay and mapping. **(4classes)**
4. Concept of base map; Types of thematic map; map reading; map design, layout and typography. **(5classes)**
5. Techniques of interpretation of Topographical maps, satellite imageries and aerial photographs for thematic mapping. **(3classes)**

Part II: Practical
Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

(To attempt 3 questions in total, 2 carrying 12 marks each and one carrying 8 marks)

1. Preparation of an administrative/physical map of India containing necessary map elements using appropriate typography. **(1 Assignment)**
2. Preparation of thematic maps for representing human geographic data using choropleth, isopleth, dot, sphere and proportionate circle techniques. **(5 Assignments)**
3. Interpretation of topographical maps for preparation of thematic maps through overlay method (taking point, line and area layers) to show relationship between relief and agriculture; and relief, drainage and settlements. **(2 Assignments)**
4. Locational accessibility mapping based on travel time through isochronic cartogram. **(1 Assignment)**
5. Preparation of land use/land cover map through visual interpretation of satellite imagery using appropriate classification scheme. **(1 Assignment)**

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

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

Reading List:

1. Anson R. and Ormelling F. J., 1994: *International Cartographic Association: Basic Cartographic Vol.*, Pergamon 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. Monkhouse F.J. and Wilkinson H.R., 1973: *Maps and Diagrams*, 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, New York.
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.

Syllabus for
BA/B.Sc.(Regular) Geography
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4th Semester

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GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

B.A./B.Sc. (General) Geography - CBCS

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester IV Marks 400 Credit 22	Compulsory paper (for Arts Stream)	ASM - CC – 4016	Assamese/MIL Compulsory paper	6	100
	(any one)	ALT- CC- 4016	Alternative English Compulsory paper	6	100
	Regular Core (Geography)	GGY - RC - 4016:	Geography of India with special reference to N.E. India	4+2	100
	Regular Core 1(other subject)	YYY-RC-4016	Subject Y	6	100
	Regular Core 2(other subject) for science stream	ZZZ-RC-4016	Subject Z	6	100
	Skill Enhancement Course (Any one)	GGY-SE-4024	Surveying Techniques	2+2	100
		GGY-SE4034	Remote Sensing, GIS and GPS	2+2	100

B.A./B.Sc. (General) Geography - CBCS

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	4th	Regular Core	GGY - RC - 4016:	Geography of India with special reference to N.E. India	100	60	20	10	6	4	4+2=6
		Skill Enhancement Course	GGY-SE-4024	Surveying Techniques	100	40	40	10	6	4	2+2=4
			GGY-SE4034	Remote Sensing, GIS and GPS	100	40	40	10	6	4	2+2=4

CBCS-based U.G. Course in Geography, 2019

Syllabus of Regular Course

Course Name: Geography of India with Reference N.E. India

Paper Code: GGY-RC-4016

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives

- This is a core paper of regular course students which intends to introduce them to India as a geographical entity.
- It seeks to develop new insights among students on significant geographical dimensions of the country along with its north-eastern part.
- A field study is incorporated to make the students understand regional diversity of India with respect to its land, people and economy.

Course outcome

- The paper will be useful for students in developing understanding on Indian geography and its various dimensions.
- It will also be useful for students preparing for various competitive examinations including civil services.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. India's location and its significance; administrative divisions. **(2 classes)**
2. Physical setting: Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular). **(5 classes)**
3. Climate: Seasonal Weather Characteristics; Climatic Divisions; Indian Monsoon (mechanism and characteristics). **(5 classes)**
4. Population Growth and distribution; Characteristics and Composition of population (rural-urban, age, sex, occupational, literacy and religious), Population Policies of India. **(4 classes)**
5. Agriculture: Environmental, Technological and Institutional Factors affecting Indian Agriculture; Distribution and Production of Rice, Wheat and Tea; Agro Climatic Zones; Food Security. **(4 classes)**
6. Distribution and characteristics/potential of Natural Resources: Soil, Vegetation, Water, Mineral Resources (Coal, Petroleum and Iron ore). **(4 classes)**
7. Factors influencing Industrial development in the country; Industrial Regions and their

characteristics; Industrial Policies in India; Distribution and production patterns of iron and steel and cotton textile. **(4classes)**

8. North-East India: Land of seven sisters and its locational significance; physiographic framework; forest cover; agricultural practices including shifting cultivation; industrial development scenario; population growth pattern. **(8 classes)**

**Part II: Practical
Credit: 2 (20 Marks)**

(20 classes of 2 hour duration each)

Unit 1: Practical works (10 marks)

(2 Questions of 5 marks each)

1. Trend of population growth and growth rates in India and N.E. India/Assam since 1901 using Census of India data (Source: censusindia.gov.in) **(2 assignments)**

2. Choropleth mapping to show spatial variation in decennial population growth rate in India /N E India/Assam. **(1 assignment)**

3. Spatial variation in the patterns of religious composition of population in India and Social composition of population (SC, ST and General) in N.E. India using pie-graph. **(2 assignments)**

4. Trend of food grains production (rice, wheat, maize, barley, jowar and bajra) in India since 1950-51 using band-graph. **(1 assignment)**

5. Map showing distribution of major tribal groups in North-East India **(1 assignment)**

Unit 2: Field Report (6 Marks)

6. Preparation of field report based on field study through observational knowledge about the geographical personality of any part of India/N.E. India/Assam under the guidance of teacher(s). (Evaluation of the Content of Field Report; 4 Marks; Viva-voce on Field Report: 2 Marks)

Unit 3: Practical Note-Book and Viva-voce (4 Marks)

7. Evaluation of Practical Note-book (2 Marks)

8. Viva-voce on Practical Works (2 Marks)

Reading List:

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Perspective. 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 Regional Geography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, RawatPubls., Jaipur & New Delhi.
10. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) Geography of India. PrayagPustakBhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur
13. Bhagabati, A.K., Bora, A. K. and Kar, B.K.: Geography of Assam, Rajesh Publications, New Delhi.
14. Taher, M and Ahmed, P.: Geography of North East India, Mani ManikPrakash, Guwahati.
15. Das, M..M.: Peasant Agriculture in Assam, EBH_India Publishers, Guwahati.
16. Gopal Krishnan, R : Geography of North East India.
17. Bhattacharya, P.2006 : Trend in Tourism Potentiality, BaniMandir, Guwahati.
18. Bhagabati, A.K. (ed) : Biodiversity of Assam, Eastern Book House, Guwahati.
19. Bhattacharyya, N.N. : North East India, Rajesh Publication, New Delhi.
20. Srivastava, S.C., : Demographic Profile of N.E. India, Mittal Publications, New Delhi.

CBCS-based U.G. Regular Course in Geography, 2019

Syllabus of Skill Enhancement Course

Course Name: Surveying Techniques

Paper Code: GGY-SE-4024

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course objectives

This course on Surveying Techniques provides a general understanding of the field of survey including its modern tools and importance in geographic study. It more particularly focuses on various types of survey instruments; principles of different types of surveying, methods of carrying out survey for preparation of map/plan in different environment by presentation of various aspects of the area.

Course outcomes

- Understanding the importance of various surveying techniques in geographical study
- General understanding of preparation procedures of different types of plan and map
- An acquaintance of different surveying techniques for representation of various spatial objects/ Phenomena.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Surveying: Its meaning, types and significance in geography. (2Classes)
2. Principles of surveying: plane and geodetic surveying; Principles of triangulation. (3Classes)
3. Techniques of surveying by Plane Table, Prismatic Compass, Theodolite and Dumpy Level. (8Classes)
4. Methods of radiation, intersection, traversing, contouring and leveling in surveying. (4Classes)
5. GPS: Basic concept, principles and utilities; surveying by Total Station. (3Classes)

Part II: Practical

Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

To attempt 2 questions carrying 16 marks each

1. Preparation of a plan or a map of an area within the college campus or any suitable area using Plane Table (applying both radiation and intersection methods) (2 Assignments)
2. Open and Closed Traverse Surveying with Prismatic Compass: Preparation of plan along with adjustment of closing errors. (2 Assignments)
3. Closed Traverse Surveying with Theodolite: Plotting of data for preparation of a plan through computation of Reduced Bearing, Consecutive Co-ordinates and Independent Co-ordinates; Measurement of height of object/objects using Theodolite (2 Assignments)
4. Profile levelling and contouring in a selected area by Dumpy Level (2 Assignments)
5. Preparing a map of a short trail along with prominent features by using hand-held GPS and associated software/freeware. (2 Assignments)

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

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

Reading List:

1. Campbell, J., 1984: Introductory Cartography, Prentice Hall Inc., Englewood Cliff.
2. Misra, R.P. and Ramesh, A., 1995: Fundamentals of Cartography, Concept Publishing Company, NewDelhi.
3. Robinson, A.H., et al: Elements of Cartography, John Wiley & Sons, New York.
4. Raisz, E.: Principles of Cartography, McGraw Hills, London.
5. Kenetkar, T.P. and Kulkarni, S.U.: Surveying and Levelling, Vol. I & II, VidyarthiGrithaPrakashan, Pune.
6. Das, A.K.2021: Pocket Size Handbook on Handling of GPS for Field Studies, GTAD and Aranyak, Guwahati (In PDF format).

CBCS-based U.G. Regular Course in Geography, 2019

Syllabus of Skill Enhancement Course

Course Name: Remote Sensing, GIS and GPS

Code: GGY-SE-4034

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course objectives

- This paper is a core paper that intends to introduce students to the interface of Remote Sensing and GIS
- It seeks to develop new insights among students on the relevance of geospatial studies within the field of geography.

Course outcomes

- The paper remains useful for students in developing skills in spatial data analysis if they wish to pursue a research programme.
- The paper will be useful for students preparing for different competitive exams including the civil services.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

Unit 1: Remote Sensing (25 Marks)

1. Remote Sensing: Definition and Development; Platform and types. (2classes)
2. Principles of Remote Sensing: Electro Magnetic Radiation (EMR) and its interaction with atmosphere and earth features; Fundamentals of Satellite Remote Sensing and Photogrammetry; Resolutions. (4classes)
3. Remote Sensing Data Products and their characteristics (Landsat, Spot, IRS) (2classes)
4. Image interpretation: Visual interpretation; Concept of Supervised and unsupervised classification. (3classes)
5. Application of Remote Sensing: Land use and Land cover and Agriculture. (2classes)

Unit 2: GIS and GPS (15 Marks)

1. Geographical Information System (GIS): Definition, Components and Functions. (2 classes)
2. Data types of GIS; Raster and Vector Data Model. (1 classe)
3. Data Sources and characteristics; Data input and Management; Concept of spatial analysis (Buffer and overlay). (2Classes)
4. Application of GIS (Natural Resource Management) (1 classe)
5. GPS: Types, principles and functions. (1 classe)

**Part II: Practical
Credit: 2 (40 Marks)**

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

To attempt 4 questions carrying 8 marks each

1. Visual Interpretation of satellite imagery and preparation of thematic maps using suitable classification scheme. (Flood and LULC mapping) 2 assignments
2. Visual interpretation of aerial photograph and preparation of thematic map using stereoscope; Determination of photo scale 2 assignments
3. Unsupervised classification of satellite imagery and preparation of thematic maps (Physical/cultural features) 2 assignments
4. Spatial data input for GIS application: Map scanning and Geo-referencing 1 Assignment
5. Digitization of different layers using point, line and polygon, attribute data input and their thematic representation (Administrative Divisions/Drainage/Road/Headquarter/ Population Density/Literacy) 3 assignments
6. GPS survey, plotting and preparation of map (waypoint, trekking and area). 2 Assignments

N.B: Basic Remote Sensing and GIS Software's for practical works: Arc GIS/Erdas Professional /Q-GIS/SAGA GIS.

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

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

Reading List:

1. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
2. Jensen J. R., 2004: *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.
3. Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
5. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
6. Rees W. G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
8. Wolf P. R. and Dewitt B. A., 2000: *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.
9. Sarkar, A. (2015): *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., New Delhi.
10. Chauniyal, D.D. (2010): *SudurSamvedanevamBhogolikSuchanaPranali*, ShardaPustak Bhawan, Allahabad.
10. Burrough, P.A. 1998: *Principles of Geographical Information Systems*, Oxford University Press.

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Syllabus for
BA/B.Sc.(Regular) Geography
Choice Based Credit System (CBCS)
Course effective from the academic year 2019-20

5th Semester

This is approved in the Academic Council held on 8/11/2019



GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

B.A./B.Sc. (General) Geography - CBCS

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester V Marks 400 Credit 22	Discipline Specific Elective 1	GGY - RE - 5016:	Environmental Geography and Disaster Management	4+2	100
	Discipline Specific Elective 2 (any one)	GGY - RE - 5026:	Cartographic and Quantitative Techniques	4+2	100
	Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY - RE - 5036:	Population and Settlement Geography	4+2	100
	Skill Enhancement Course (Any one)	GGY-SE-5044	Computer aided Data Analysis and Graphical Presentation	2+2	100
		GGY-SE-5054	Geography of Tourism	2+2	100

B.A./B.Sc. (General) Geography - CBCS

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	5th	Discipline Specific Elective 1 & 2 (Any one)	GGY - RE - 5016:	Environmental Geography and Disaster Management	100	60	20	10	6	4	4+2=6
			GGY - RE - 5026:	Cartographic and Quantitative Techniques	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY - RE - 5036:	Population and Settlement Geography	100	60	20	10	6	4	4+2=6
		Skill Enhancement Course (Any one)	GGY-SE-5044	Computer aided Data Analysis and Graphical Presentation	100	40	40	10	6	4	2+2=4
			GGY-SE-5054	Geography of Tourism	100	40	40	10	6	4	2+2=4

CBCS-based U.G. Course in Geography, 2019

Syllabus of Regular Course (Discipline specific elective)

Course Name: Environmental Geography and Disaster Management

Paper Code: GGY-RE-5016

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- This is a discipline specific elective paper which intends to introduce students to geography and environment interface.
- It seeks to develop new insights among students on the relevance of environmental studies from spatial perspective.

Course Outcomes:

- The paper will be useful for students in developing ideas on environmental issues including disasters that geographers usually address.
- The paper will also be useful for students preparing for different competitive exams including the civil services.

Part I: Theory

Credit: 4 (60 Marks)

(40 Classes of 1 hour each)

1. Environmental Geography: Nature, Scope and Significance. **(4 Classes)**
2. Human-Environment Relationships – Historical progression; Adaptation in different Biomes. **(6 Classes)**
3. Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming and Bio-Depletion. **(10 Classes)**
4. Meaning of Hazard, Disaster, Risk and Vulnerability; Types of hazard/disaster (Natural and Manmade). **(4 Classes)**
5. Disaster Management Cycle and Phases: Prevention, Preparedness, Response, Rehabilitation, Reconstruction and Mitigation, **(4 Classes)**
6. Major Hazards and Disasters, and their Management: Flood, Earthquake, Wildfire, and Chemical and Nuclear explosions. **(6 Classes)**
7. National Environmental Policy and National Disaster Management Plan: Environmental Protection Act 1986 and Disaster Management Act 2005. **(6 Classes)**

Part II: Practical
Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (16 Marks)

(Two questions of 8 marks each)

1. Exploring satellite imageries and toposheets to observe bank line change of the Brahmaputra river from any selected stretch in three different time periods and preparation of map therefrom. **(1 exercise)**
(Goalpara, Palasbari, Nimatighat, etc.)
Satellite images can be downloaded from <https://earthexplorer.usgs.gov/>
Survey of India toposheets can be downloaded freely from <https://soinakshe.uk.gov.in/mtr/>
2. Mapping of major wetlands in a district and computation of shape and size (area) for their classification. **(1 exercise)**
3. Preparation of a map of a nearby wetland and to identify the changes in dimension, water level and encroachment it faced during the last one decade. Presentation of data in tabular form along with the map (field-based). **(1 exercise)**
4. Preparation of a long-term precipitation time series curve for any selected station of N.E. India using moving average method by downloading the annual rainfall data for any district/station of Assam for at least 30 years from the portal https://www.indiawaterportal.org/met_data/. Students can also explore the web portal <https://mausam.imd.gov.in/> to get an idea of different types of weather data in India and their historical and present distribution. **(1 exercise)**
5. Drawing of a diagram of disaster management cycle with reference to some disasters (flood and earthquake) in North-East India and to indicate the activities associated with each step. **(2 exercise)**
6. Drawing of a map of Assam showing the major fault lines thereon. Also to plot at least 50 epicentres in last few years and to explain the areas of their concentration with the help of Bhookamp app. **(1 exercise)**
7. Preparation of a disaster vulnerability map of Assam/ N.E. India based on data of natural disasters (Flood/earthquake/landslide/bank erosion) with respect to their occurrence and frequency in different areas. **(1 exercise)**

Unit II: Practical Note-Book and Viva-voce (4 Marks)

1. Evaluation of Practical Note-Book (2 Marks)
2. Viva-voce (2 Marks)

Reading List:

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: Principles of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson BrooksCole, Singapore.
6. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
8. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
9. Singh S., 1997: Environmental Geography, PrayagPustakBhawan. Allahabad.
10. UNEP, 2007: Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
12. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford & IBH Pub..
13. Alcántara-Ayala, I. (2002). Geomorphology, natural hazards, vulnerability and prevention of natural disasters in developing countries. *Geomorphology*, 47(2-4), 107-124.
14. Goudie, A., & Ayala, I. A. (2010). *Geomorphological hazards and disaster prevention*. Cambridge University Press.
15. <https://www.undrr.org/publications>
16. <http://sdmassam.nic.in/dmp.html#ddmp>
17. https://ndma.gov.in/sites/default/files/PDF/DM_act2005.pdf
18. http://sdmassam.nic.in/pdf/publication/undp/disaster_management_in_india.pdf.

CBCS-based U.G. Course in Geography, 2019

Syllabus of Regular Elective Course

Course Name: Quantitative and Cartographic Techniques in Geography

Paper Code: GGY-RE-5026

Total Credit: 6 (4+2)

Total Marks 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

This course on Quantitative and Cartographic Methods provides a general understanding of the application of quantitative and cartographic techniques in geographical studies. It basically deals with understanding of statistical analysis of geographical data and their graphical representation and mapping using various cartographic techniques.

Course Outcomes:

- Understanding the importance of various statistical and cartographic techniques in geographical studies.
- General understanding of geographical data, map type, map scale and map content.
- An acquaintance of different cartographic techniques for representation of various physical and human geographic data.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

**Unit 1 (Quantitative Techniques): 30 Marks
Classes)**

(20

1. Quantification and its significance in geographical study. (2 classes)
2. Geographical Data: Nature, types and sources; Concept of sampling and types of sampling (simple random and stratified random). (4 classes)
3. Measures of central tendency (mean, median and mode) and dispersion (range, standard deviation and coefficient of variation), and their applications in geographical data analysis. (8 classes)
4. Correlation and Regression Analysis: Meaning of correlation; Bi-variate coefficient of correlation (Spearman's rank correlation and Pearson's product-moment correlation); Linear regression analysis; and their applications in geographical data analysis. (6 classes)

Unit 2 (Cartographic Techniques): 30 Marks

(20 Classes)

1. Meaning of cartography and its need in geography; Traditional versus Digital cartography. (4 classes)
2. Shape and size of the earth; Coordinate system (latitude and longitude). (2 classes)

3. Map: Meaning, scale and classification; map as a tool in spatial analysis. (4 classes)
4. Map Projection: Meaning and classification (zenithal, conical and cylindrical); choice of map projection. (8 classes)
5. Thematic map: meaning and types; Choropleth and Isopleth mapping. (2 classes)

Part II: Practical
Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit 1 (Practical Works): 16 Marks
(2 Questions of 8 marks each)

1. Tabulation/Grouping of geographical data for making frequency distribution table; Preparation of Histogram, Frequency Polygon and Frequency Curve. (1 assignment)
2. Computation of mean, median and mode for ungrouped and grouped geographical data; and Determination of median and mode using graphical methods. (1+1+1 assignments)
3. Computation of the values of standard deviation and coefficient of variation of ungrouped and grouped data relating to some geographical phenomena (rainfall, landholding, income, production, etc) for comparison of distribution patterns. (2 assignments)
4. Computation of coefficient of correlation between two logically associated geographical phenomena using Spearman's rank correlation and Pearson's product-moment correlation formulae; Preparation of scatter diagram and fitting the line of linear regression of Y on X for any set of bi-variate data relating to meaningful geographical phenomena. (2 assignments)
5. Construction of graphical scale; Computation work for conversion of map scales. (3 Assignments)
6. Construction of graticule of map projection along with properties and uses: Zenithal polar gnomonic, Simple conical with one standard parallel, simple cylindrical and Gall's stereographic cylindrical. (4 Assignments)
7. Representation of physical and human geographic data through Choropleth and Isopleth mapping and Pie cartogram. (3 Assignments)

Unit 2 (Practical Note-Book and Viva-voce): 4 Marks

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

Reading List:

Quantitative Methods in Geography:

1. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
2. Sarkar, A. (2013) *Quantitative Geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi.
3. Yeates, M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.
4. Mathews, J.A., 1987: *Quantitative and Statistical Approaches to Geography: A Practical Manual* Pergamon, Oxford.
5. Mahmood, A., 1999: *Statistical Methods in Geographical Studies*, Rajesh Publications, New Delhi.
6. Elhance, D.N., 1972: *Fundamentals of Statistics*, KitabMahal, Allahabad
7. Monkhouse, F.J. & Wilkinson, H.R., 1989: *Maps & Diagrams*, B.I. Publications, New Delhi
8. Gregory, S., 1963: *Statistical Methods and Geographers*, Longman, London

Cartographic Methods in Geography:

1. Monkhouse, F.J. and Wilkinson, H.R., 1989: *Maps and Diagrams*, B.I. Publications Ltd., Mumbai.
2. Singh R. L. and Singh, R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
3. Singh, L.R., 2013: *Fundamentals of Practical Geography*, ShardaPustakBhawan, Allahabad.
4. Sarkar, A., 2015: *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., New Delhi
5. Misra, R. P. and Ramesh, A., 1989: *Fundamentals of Cartography*, Concept Publishing Company, New Delhi.

CBCS-based U.G. Course in Geography, 2019
Syllabus of Regular Elective Course

Course Name: Population and Settlement Geography
Paper Code: GGY-RE-5036

Total Credit: 6 (4+2)
Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives

- 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.
- It seeks to develop understanding among students about the significance of population geography and settlement geography and their inter-relationship.

Course outcomes

- The paper will be useful for students in developing ideas about spatio-temporal changes in the characteristics of population and settlement and the factors associated with them.
- The paper will be useful for students preparing for various competitive exams including the civil services.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

Unit I: Population Geography (40 Marks)

26

Classes

1. Defining the field of population geography: meaning and scope; its relation with demography. (3 Classes)
2. Sources of population data; Perspectives on Census of India publications – Primary Census Abstract, District Census Hand-Book, Sample Registration System, etc. (2 Classes)
3. Distribution and density of population: Factors influencing population distribution and density; global pattern of population distribution. (4 Classes)
4. 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)

5. Theories of population growth: Malthusian Theory and Demographic Transition Theory. (3 Classes)
6. Population composition and associated characteristic patterns in global contexts: Age-Sex Composition; Rural-Urban Composition; Population ageing. (6 Classes)

Unit II: Settlement Geography (20 Marks) 14 Classes

1. Defining the field of settlement of geography: Meaning and scope. (3 Classes)
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. (4 Classes)

Part II: Practical

Credit: 2 (20 Marks)
(20 classes of 2 hour duration each)

Unit I: 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 (4 Marks)

1. Evaluation of Practical Note-Book (2 Marks)
2. Viva-voce (2 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 in the 21st Century*, Earthscan.
8. Newbold, K. B., 2009: *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
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): *JanasankyaBhugol*, M P Hindi Granth Academy, Bhopal.
12. Maurya, S. D. (2009) *JansankyaBhugol*, ShardaPustakBhawan, Allahabad.
13. Chandna, R. C. (2006), *JansankhyaBhugol*, 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 Third World 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*, ShardaPustakBhawan, Allahabad.

CBCS-based U.G. Regular Course in Geography, 2019

Syllabus of Skill Enhancement Course

Course Name: Computer Aided Data Analysis and Graphical Presentation

Paper Code: GGY- SE-5044

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course objectives:

- This paper is a core paper that intends to introduce the students to the interface of computer technology and its application in data analysis and representation.
- It seeks to develop new insights among the students on the use of computer technology in the field of geography.

Course outcomes:

- This paper shall prove to be very useful to the students in developing skills in data analysis and graphical presentation using various softwares including MS-Excel.
- This paper will also be useful for students preparing for different competitive exams including the civil services.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Knowing Computer: Basic components of computer system; Major developments in hardwares and softwares and their utilities; Major computer applications and associated recent developments. (5classes)
2. Concept of Computing: Handling of numerical data in computer; Database Management System (DBMS): Data formats, Data entry and Data tabulation. (3classes)
3. Computer operations in geographical data analysis: Basic knowledge of MS Excel, SPSS and R. (3classes)
4. Geographical Data Analysis using MS Excel: Basic functions, performing computation of basic statistics (Central Tendency, Dispersion, Correlation).(3 classes)
5. Graphical representation of geographical data using MS Excel: Basic functions, Concept and types of majorcharts and graphs, and their relationship with geographical data; Basic ideas of graphical representation of geographical data (Bar,

Pie, Line, Scatter plot and Regression line). (3
classes)

6. Basics of Internet Browsing and Data acquisition: Concept of internet browsing; web sources for various geographical data; Geographical data acquisition from online portals. (3
classes)

Part II: Practical
Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

(To attempt 3 questions in total, 2 carrying 12 marks each and 1 carrying 8 marks)

1. Processing and tabulation of excel data and preparation of frequency distribution table using filtering method (For attributes like age structure, sex composition, caste composition, education and occupation, production, etc.). (3 assignments)
2. Preparation of Bar Diagram (Simple and Composite) using geographical data (State/District wise population and production of foodgrains in India). (2 assignments)
3. Preparation of Pie Diagram using geographical data (Land use or Population composition in Assam /N.E. India). (1 assignment)
4. Preparation of trend graph using time series data of production/population growth of Assam/N.E. India/India. (2 assignments)
5. Computation and analysis of geographical data using basic statistical techniques (Mean, Median, Mode, Correlation and Regression) (5 assignments)
6. Preparation of a Power Point presentation of the above mentioned assignments (At least 5) using MS office package. (1 assignment)

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

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

Reading List:

1. Anita Goel, Computer Fundamentals, Pearson, 2010
2. Comdex: Hardware and Networking Course Kit, DreamTech press
3. E. Balaguruswamy, Computer Fundamentals and C Programming, Tata McGraw Hill.
4. Bartee, Thomas C. (1977): Digital Computer Fundamental; McGraw Hill.
5. Chauhan, S.; Chauhan, A. and Gupta, K. (2006): Fundamental of Computer; Firewall Media.
6. Flake, L.J.; McClintock, C.E. and Turner, S. (1989): Fundamental of Computer Education; Wordsworth Pub. Co.
7. Leon, A .and Leon,M.(1999): Introduction to Computer, USB Publishers' Distributors Ltd.
8. Malvino, A.P. and Leach, D.P. (1981): Digital Principles and Applications; Tata McGraw Hill.
9. Rajaraman, V. (2003): Fundamentals of Computer, Prentice Hall Publisher
10. Sarkar, A. and Gupta, S.K (2002): Elements of Computer Science, S Chand and Company, New Delhi Blissmer (1996): Working with MS Word; Houghton Mifflin Co.
11. Johnson, Steve (2007): Microsoft Power Point 2007; Pearson Paravia Bruno.
12. Walkenbach, John (2007): Excel 2007 Bible; John Wiley.

Paper Code: GGY–SE-5054

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course Objectives:

This paper introduces the students to the field of tourism from the lens of geography and its specificities. It seeks to develop new insights among students on how tourism and allied activities are shaped by geography of an area and also how such activities are responsible in shaping economic, social and environmental context from globe to local levels.

Course Outcomes:

- The paper will be useful for students in developing ideas on how geographical factors tangent on tourism activities and how geographers seek to address issues of development and carrying capacities of varied environments.
- It will also build skills for students seeking to enroll in a research programme and/or provide openings for them to work with tourism/eco-tourism planning agencies.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Geography of Tourism: Nature and scope; Concepts and issues of tourism; Recreation and leisure inter-relations; Robinson's geographical parameters of tourism. (3 classes)
2. Factors and types of tourism: Nature tourism, Cultural tourism, Medical tourism, Adventure tourism, Pilgrimage, etc. (4 classes)
3. Recent Trends in tourism: International and Domestic (India); Eco-Tourism, Sustainable Tourism. (4 classes)
4. Impact of tourism on economy, environment and society. (4 classes)
5. Tourism development in India: Tourism infrastructures; Case studies of tourism development in Himalaya, Desert and North-East India with special reference to Assam; National tourism policies and prospects. (5 classes)

Part II: Practical

Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

(To attempt 3 questions in total, 2 carrying 12 marks each and 1 carrying 8 marks)

1. Trend of growth of tourist arrivals in the world/India/Assam since 1960 using Moving average method and least squares method. (4 assignments).
2. Trend of tourist arrivals in the north-eastern states of India and few top ranking tourist arriving states of India since 1980 using Band-graph. (2 assignments)
3. Line Graph showing pattern of tourist arrival (Domestic and International) in relation to rainfall and temperature in a year for selected tourist spots of North-East India / Assam. (2 assignments)
4. Spatial Patterns of Seasonal variation (Spring, Summer, Autumn and Winter) in tourist arrival in capital cities of North-East Indian States using Pie diagram and Bar Diagram. (2 assignments)
4. Preparation of a transport connectivity (road, railway and air) map of Assam and North-East India for major tourist destinations. (1 assignment)
5. Preparation of a tourist map of North-East India showing locations of important national parks and wildlife sanctuaries from tourism potential perspectives (indicating the major highlights of the respective destinations including distance from Guwahati city within box). (2 assignments)
6. Preparation of a tourist guide map of North-East India showing location of major tourist destinations and road connectivity routes from Guwahati city. (1 assignment)

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

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

Reading List:

1. Bhattacharya, P. (2011): Tourism in Assam: Trend and Potentialities, Banimandia, Guwahati

2. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
3. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.
4. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
5. Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann-USA. Chapter 2.
6. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, www.cabi.org.
7. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
8. Singh Jagbir (2014) “Eco-Tourism” Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).
9. Market Research Division, Dept. of Tourism, Govt. of India, India Tourist Statistics (available in PDF form), New Delhi
10. UNWTO: Tourism Barometer (available in their web portal to have a fresh glimpse of global tourism statistics/ other relevant sites may also be consulted)

Syllabus for

**BA/B.Sc.(Regular) Geography
Choice Based Credit System (CBCS)**

Course effective from the academic year 2019-20

6th Semester

This is approved in the Academic Council held on 8/11/2019



GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

Class 1 Hour 1	Duration	Credit
1 Theory Class	1 Hour	1
1 Tutorial Class	1 Hour	1
1 Practical Class	2 Hours	1

B.A./B.Sc. (General) Geography - CBCS

Credit and marks distribution scheme for CBCS curriculum in Geography, Regular Course

Semester VI Marks 400 Credit 22	Discipline Specific Elective 1 &2 (any one)	GGY-RE-6016:	Social and Political Geography	4+2	100
		GGY-RE-6026:	Geography of Resources and Development	4+2	100
	Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY-RE-6036:	Geography of Health	4+2	100
	Skill Enhancement Course (Any One)	GGY-SE-6044	Field Techniques and Project work	2+2	100
		GGY-SE-6054	Environmental Impact Assessment	2+2	100

B.A./B.Sc. (General) Geography - CBCS

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	5th	Discipline Specific Elective 1 & 2 (Any one)	GGY-RE-6016:	Social and Political Geography	100	60	20	10	6	4	4+2=6
			GGY-RE-6026:	Geography of Resources and Development	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective 3 (Generic Elective for Arts Stream)	GGY-RE-6036:	Geography of Health	100	60	20	10	6	4	4+2=6
		Skill Enhancement Course (Any one)	GGY-SE-6044	Field Techniques and Project work	100	40	40	10	6	4	2+2=4
			GGY-SE-6054	Environmental Impact Assessment	100	40	40	10	6	4	2+2=4

CBCS-based U.G. Course in Geography, 2019
Syllabus for Discipline-Specific Elective Course (Regular)
Course Name: Social and Political Geography
Paper Code: GGY-RE-6016
Total Credit: 6 (4+2)
Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- To appreciate the social and political dimensions of geographic phenomena.
- Understand how geography influences political issues and their spatial dimensions.

Course Outcomes:

- This course will help equip the students to comprehend various social and political aspects of phenomena and their interface within the realm of geography.
- The paper will be very useful for students preparing for various competitive examinations including civil services.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

Unit 1: Social Geography (30 Marks)
Classes)

(20

1. Social Geography: Meaning, Scope and approaches of study. (4 Classes)
2. Concept and types of social space and social groups. (4 Classes)
3. Social Well-being: Concept and components: Housing, health and education; Concept of human development and its measurements. (4 Classes)
4. Contribution of race, religion, language and ethnicity in promoting diversity in India. (3 Classes)
5. Social geographies of inclusion and exclusion: Basic concept and characteristics of caste system, slums, social crime and gender identity. (4 Classes)

Unit 2: Political Geography (30 Marks)

(20 Classes)

1. Political Geography: Nature, scope and approaches to its study. (4 Classes)
2. Concept of state, nation, and nation-state; Attributes of state. (3 Classes)
3. Concept of frontiers and boundaries; boundary problems with reference to India and North-East India; Concept of buffer zones.

4. Concept of Geopolitics; Mackinder's Heartland Theory. (4Classes)

**Part II: Practical
Credit: 2 (20 Marks)**

(20 classes of 2 hour duration each)

Unit 1: Practical Works (16 Marks)

(Two questions of 8 marks each)

1. Mapping the patterns of human development in India and Assam using HDI **(1 Exercise)**
2. Construction of Ternary diagram representing social composition of population in India /North- East India **(1 Exercise)**
3. Sex disparity in literacy in India /North-East India using a simple Index. **(1 Exercise)**
4. Computation of Shape Index for selected states and countries. **(2 Exercises)**
5. Construction of a map of India/North-East India highlighting the major inter-state boundary conflict zones. **(2 Exercises)**
6. Reorganization of states of North-East India during Pre and Post Independence periods (up to the present). **(3 Exercises)**

Unit II: Practical Note-Book and Viva-voce (4 Marks)

1. Evaluation of Practical Note-Book (2 Marks)
2. Viva-voce (2 Marks)

Reading List:

Social Geography

1. Ahmad, A., 1999: Social Geography, Rawat Publications, Jaipur and New Delhi.
2. Ahmad, A., (ed), 1993: Social Structure and Regional development: A Social Geography Perspective, Rawat Publications, Jaipur.
3. Carter, John and Trevor, Jones. 1989: Social Geography: An Introduction to Contemporary Issues, Edward Arnold, London.
4. Eyles, J.: 'Social Geography', in Johnston, R.J., et al, The Dictionary of Human Geography.
5. Jones, E. and Eyles, J., 1977: An Introduction to Social Geography, Oxford University Press, Oxford and New York.
6. Jones, E., (ed), 1975: Readings in Social Geography, Oxford University Press, Oxford.
7. Sharma, H.N., 2000: 'Social Geography' in Singh, J. (ed.) Progress in Indian Geography (1996-2000), INSA, New Delhi.
8. Smith, D.M., 1977: Human Geography: A Welfare Approach, Edward Arnold, London.
9. Sopher, D.E. (ed), 1980: An Exploration of India: Geographical Perspectives on Society and Culture, Longman, London.
10. Srinivas, M.N., 1986: India: Social Structure, Hindustan Publishing Corporation, Delhi.
11. Taher, M., 1994: An Introduction to Social Geography: Concept and Theories, NEIGS, Guwahati. 37

Political Geography

1. Adhikari , S.,1996 : Political Geography, Rawat Publications, Jaipur and New Delhi.
2. De Blij, H.J.,1972 : Systematic Political Geography, John Wiley , New York.
3. Dikshit, R.D.,1982 : Political Geography : A Contemporary Perspective, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
4. Muir, R.,1975 : Modern Political Geography , Macmillan Ltd., London.
5. Pounds, N.J.G.,1972 : Political Geography, McGraw Hill , New York.
6. Prescott, J.R.V.,1972 : Political Geography, Methuen, London.
7. Sukhwal, B.L., 1979: Modern Political Geography of India, Sterling, New Delhi. Taylor, P.J., 1989: Political Geography, Longman, London.

CBCS-based U.G. Course in Geography, 2019

Syllabus of Discipline Specific Elective

Course Name: Geography of Resources and Development

Paper Code: GGY-RE-6026

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- This paper intends to introduce the students about basic concepts of resource and resource management, and its relevance to sustainable development.
- To get acquainted with different concepts of development with special focus on economic development.

Course Outcomes:

- This paper will be useful to students in developing ideas on different aspects of resources, and the linkages with development issues that geographers usually address.
- This paper will also be useful for students preparing for different competitive examinations including the civil services.

Part I: Theory

Credit: 4 (60 Marks)

(40 lasses of 1 hour duration each)

1. **Geography of Resources and Development:** Concept of resource; Relationship between resource- base and development; Significance of resource and development studies in geography; Classification and Characteristics of resources. **(6 classes)**
2. **Natural Resources for Development:** Distribution, Utilisation, and Management of land (soil), water, forests, minerals and energy resources in the World and their contribution to development. **(8 classes)**
3. **Development and Environment:** Concept of development; Rationale use of resources and the concept of sustainable development; Environment and development; Sustainable Development Goals; Concept of rural livelihood. **(8 classes)**
4. **Global issues of Natural Resources and Development:** Sustainable Natural Resource Management; United Nations Framework of Classification for Resources (UNFC); Resource and development planning: Conservation of resources, integrated environment and resource management **(10 classes)**
5. **Pattern of Economic Development and Resource use:** Patterns of development in developed and developing countries; Resource management in developed countries (Israel and Japan) and Resource management in developing countries (Nepal and Bangladesh); Concept of Green technology. **(8 classes)**

Part II: Practical
Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit 1: Practical Works (16 Marks)

(Two questions of 8 marks each)

1. Determination of levels of development in India/North-East India/Assam based on few development indicators using simple composite index and ranking method.
(2 Assignments)
2. Mapping of physiological density of population in Assam at district level or North-East India at state level.
(1 Assignment)
3. Mapping of spatial variation of category-wise forest cover(very dense, moderate dense and open forest) in Assam/ North-East India using Pie diagram based on data from the recent Forest Survey of India's report (*available at: <https://fsi.nic.in/forest-report-2019>*)
(1 Assignment)
4. Identification of important natural resources/ resource sites (e.g. Reserve Forests/Wildlife sanctuaries/national parks, mineral resources, rivers, grasslands, wetlands, etc.) within 100km radius around the state capitals of North-East India using Google Earth Platform.
(1 Assignment)
5. Preparation of resource potential map of North-East India at state level showing spatial variation in production of selected commodities (rice, maize, coal, petroleum, hydro power, tea, etc.) using simple composite index.
(1 Assignment)
6. Correlation analysis of irrigation and intensity of cropping in Assam/ North-East India.
(1 Assignment)
7. Time series analysis of the trend of Coal/Crude oil/Natural gas production in India using moving average method.
(1 Assignment)

Unit II: Practical Note-Book and Viva-voce (4 Marks)

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

Reading List:

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: *Exploitation, Conservation and Preservation: A Geographical Perspective on Natural Resources Use*, John Wiley and Sons, New York.
2. Gadgil M. and Guha R., 2005: *The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity*, Oxford University Press, USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: *Natural Resources: Ecology, Economics and Policy*, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: *Resources, Society and Environmental Management*, Paul Chapman, London.
5. Klee G., 1991: *Conservation of Natural Resources*, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: *Environmental Resources*, John Wiley and Sons, New York.
7. Mitchell B., 1997: *Resource and Environmental Management*, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge University Press, New York.
9. Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge, London.
10. Gilg A. W., 1985: *An Introduction to Rural Geography*, Edwin Arnold, London.
11. Krishnamurthy, J. 2000: *Rural Development - Problems and Prospects*, RawatPubs., Jaipur
12. Lee D. A. and Chaudhri D. P. (eds.), 1983: *Rural Development and State*, Methuen, London.
13. Misra R. P. and Sundaram, K. V. (eds.), 1979: *Rural Area Development: Perspectives and Approaches*, Sterling, New Delhi.
14. Ramachandran H. and Guimaraes J.P.C., 1991: *Integrated Rural Development in Asia – Learning from Recent Experience*, Concept Publishing, New Delhi.
15. Robb P. (ed.), 1983: *Rural South Asia: Linkages, Change and Development*, Curzon Press.
16. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) *Just Sustainabilities: Development in an Unequal World*. London: Earthscan. (Introduction and conclusion.)
17. Ayers, Jessica and David Dodman (2010) “Climate change adaptation and development I: the state of the debate”. *Progress in Development Studies* 10 (2): 161-168.
18. Baker, Susan (2006) *Sustainable Development*. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, “The concept of sustainable development”).
19. Brosius, Peter (1997) “Endangered forest, endangered people: Environmentalist representations of indigenous knowledge”, *Human Ecology* 25: 47-69.

CBCS-based UG Course in Geography, 2019
Syllabus of Discipline Specific Elective (Regular Course)

Course Name: Geography of Health

Paper Code: GGY-RE-6036

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives:

This course basically deals with understanding the concept of health and geography of health as a field of study. It throws light on the factors determining human health and occurrence of various types of diseases in relation to ecology. It also provides information about human health in relation to global climate change in general and disease pattern in relation to varying environmental contexts in India in particular.

Course outcomes:

- Understanding of the concept of human health and healthcare from the perspective of geography.
- Acquiring knowledge about factors influencing human health and occurrence of diseases in varying ecological settings.
- Providing useful information about the impact of global climate change on human health and occurrence of various diseases in different ecological settings in India.

Part I: Theory
Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Geography of Health: Definition and significance; approaches of study: ecological, social and spatial. **(6 classes)**
2. Disease ecology: ecology and human health; geographical factors affecting human health; factors influencing disease transmission (pathological, physical, environmental, social, cultural and economic). **(8 classes)**
3. Classification of diseases: genetic, zoonotic, communicable, non-communicable, occupational, deficiency diseases and malnutrition. **(4 classes)**
4. Disease occurrence: Emergence, re-emergence and persistence; Modes of transmission of major diseases (Japanese encephalitis, hepatitis, AIDS and COVID-19) and their broad global distribution. **(8 classes)**
5. Healthcare Systems: Meaning and components; Universal government-funded health system; Role of WHO and UNICEF in global health care; Health care services in

India: Family welfare, Immunization, National Health Mission and its programmes, Challenges to healthcare system during pandemic situation like COVID-19.

(8 classes)

6. Environment, human habit and health: Basic concept and ideas relating to food habit and health, occupation and health, environmental degradation and health, and lifestyle and human health. **(6 classes)**

Part II: Practical

Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (16 Marks)

(Two questions of 8 marks each)

1. Mapping of health status indicators (hospital beds, primary health centres, doctors, para medics, etc.) in Assam/N.E. India using Z-score method. **(1 Exercise)**
2. Trend of infant mortality and maternal mortality rates in India using line graph. **(2 Exercises)**
3. Choropleth mapping of infant mortality in India at state level. **(1 Exercise)**
4. Map showing spatial variation of disease incidence rate in India/N.E. India at state level. **(1 Exercise)**
5. Mapping of seasonal variation in the occurrence of Covid-19 cases in Assam at district level using pie graph. **(1 Exercise)**
6. Preparation of questionnaire for health care and health status survey. **(1 Exercise)**
7. Graph showing relationship of disease (JE, Malaria, etc.) occurrence pattern due to monthly variation of rainfall and average temperature in any district of Assam. **(1 Exercise)**

Unit II: Practical Note-Book and Viva-voce (4 Marks)

1. Evaluation of Practical Note-Book (2 Marks)
2. Viva-voce (2 Marks)

Reading List:

1. AkhtarRais (Ed.), 1990 : Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Anthamatten P, (2011), Introduction to the Geography of Health, Rawat Publications, Jaipur
3. Avon Joan L. and Jonathan A Patzed.2001 : Ecosystem Changes and Public Health,Baltimin, John Hopling Unit Press(ed).
4. Banerji, D. (1986) :Social Sciences and Health Services in India, LokPrakashan,New Delhi.
5. Bradley,D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.
6. Brown, T., McLafferty, S., Moon, G. (2010): A Companion to Health and Medical Geography, Wiley Blackwell, UK
7. Christaler George and HristopolesDionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
8. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
9. Curtis, S. (2004): Health and Inequality: Geographical Perspectives, Sage Publications, London
10. Gatrell, A.,andLoytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
11. Hardham T. and Tannav M.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
12. Mishra, R.P.(1970): Medical Geography of India, National Book Trust ofIndia.
13. Mishra, R.P.(2002)), Geography of health : a treatise on geography of life and death in India, Concept Publishing Co., New Delhi
14. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.
15. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
16. National Health Mission<https://nhm.gov.in/>
17. National Health Portal India <https://www.nhp.gov.in/healthprogramme/national-health-programmes>
18. Phillips, D.andVerhasselt, Y., 1994: Health and Development, Routledge, London.
19. Shaw, M., Dorling, D. and Mitchell, R, (2002) Health, Place and Society, Pearson, London
20. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

CBCS-based U.G. Course in Geography, 2019

Syllabus of Regular Skill Course

Course Name: Field Techniques in Geography and Project Work

Paper Code: GGY-SE-6044

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course objectives:

This paper on Field Techniques in Geography is of pedagogical importance as it helps the students of geography to acquire the first hand experience about the geography of a particular area. It also helps the students to learn the various techniques of data collection from the field and to understand any pre-defined problem in proper perspective.

Course outcomes:

- This course will help students to proceed with a research problem and the steps she/he should adopt and the tools and craft to be employed for doing quality research.
- Students perceive fieldwork to be beneficial to their learning, because through it they experience 'geographical reality', and have deeper understanding of the subject.
- The students will have a chance to interact with respondents and collect data through questionnaire directly from the field.
- This course will develop understanding about designing and writing a field report.

Part I: Theory

Credit: 2 (40 Marks)

(20 Classes of 1 hour each)

1. Geography and Field Studies: Geography as a field science; Need of field work in geography; Nature of field studies in physical geography and human geography (Basic ideas only). (2classes)
2. Concept of Case Study and Its identification in the varying geographical contexts (Physical/Human/Rural/Urban/Environmental). (2classes)
3. Tools and Techniques in Field Studies: Nature of data and their collection techniques relating to various geographical phenomena (Physical and Human); Structure of field survey questionnaire; Collection of Physical geographic data: Observations and photography, field interview, questionnaire survey, etc; Collection of Human geographic data: Questionnaire survey, Focus group interview/discussion, etc. (6classes)
4. Surveying: Concept of ground surveying and mapping; Conduct of traverse surveying with Prismatic Compass; Profile levelling and contouring with Dumpy Level; Point distribution survey with GPS; Field mapping of Village, River bank, Landslides, Market, etc through transect and sketch map. (7classes)

5. Preparation of Project Report: Basis of selection of the theme of field-based project work; Basic concept of citation, referencing and bibliography; Broad design of project report: Preliminaries; Text; Tables, Figures and Appendices; Project Report Writing; Executive Summary. (3Classes)

Part II: Field Book and Project Report

Credit: 2 (40 Marks)

(20 classes of two hour duration each)

Unit I: Field Book Preparation and Evaluation (15 Marks)

Based on understanding of various field techniques of geography in theory course the students shall undertake the following field assignments within or nearby the College campus and some other area, as the case may be, under the guidance of respective teachers. The students shall present their assignments in A4 size paper as a Field Book and submit the same with teachers' signature in binding form (Spiral or Kutcha binding) for evaluation in the examination. This field book shall be evaluated by the external examiner.

Contents of Field Book:

1. Field observations of a near-by area and preparation of a brief report (within 4-5 pages) about the prevailing physical and human landscape of the area along with its spot photograph.

(1 Assignment)

2. Preparation of two field survey questionnaire/schedule (within 1 page each) for collection of data relating to two different broad phenomena/problems (one on physical phenomenon and another on human phenomenon), and processing, tabulation and graphical representation of the same.

(2 Assignments)

3. Closed traverse surveying within College campus with Prismatic Compass and plotting of some details within the polygon, and preparation of a plan with appropriate scale and error correction, if any.

(1 Assignment)

4. Longitudinal profile levelling/Contouring in College campus or any nearby area with Dumpy Level, and plotting of collected data in the form of longitudinal profile / contour map.

(1 Assignment)

5. Preparation of field map of a village, urban locality/market, river bank/wetland and its adjoining area or their any section through Transect and sketch map along with a spot photograph of the same.

(2 Assignments)

Unit II: Project Report Preparation and Evaluation (15 Marks)

1. Each student will have to prepare a Project Report on a suitable geographical problem under the guidance of respective teacher following appropriate methodology, data base and literature review.
2. Length of the Report: 25-30 printed A4 size pages (font size 12 in Times New Roman with 1.5 spacing) including text, tables, figures, references, etc.

3. The project report in binding form (Kutchra or Spiral binding) duly signed by the guide concerned has to be submitted to the department at least 3 days before the scheduled date of examination.
4. The content and quality of the project report shall be evaluated as an average of the marks out of 15 given by the external examiner and the teacher guide.

Unit III: Viva-voce of Field Book and Project Report (10 Marks)

- (i) Viva-voce on Field Book: 5 Marks
- (ii) Viva-voce on Project Report: 5 Marks
(The viva-voce of the above shall be conducted by the external examiner)

Reading List:

1. Creswell J., 1994: *Research Design: Qualitative and Quantitative Approaches* Sage Publications.
2. Dikshit, R. D. 2003. *The Art and Science of Geography: Integrated Readings*. Prentice-Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in *Qualitative Methods in Human Geography*, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, Neela 1993. *Participatory Rural Appraisal: Methodology and Application*. Concept Pubs. Co., New Delhi.
5. Mukherjee, Neela 2002. *Participatory Learning and Action: with 100 Field Methods*. Concept Pubs. Co., New Delhi.
6. Robinson A., 1998: "*Thinking Straight and Writing That Way*", in *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences*, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
8. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.
10. Wolcott, H. 1995. *The Art of Fieldwork*. Alta Mira Press, Walnut Creek, CA.
11. Monkhouse, F.J. and Wilkinson, H.R., 1989: *Maps and Diagrams*, B.I. Publications Ltd., Mumbai.
12. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
13. Singh, L.R., 2013: *Fundamentals of Practical Geography*, ShardaPustakBhawan, Allahabad.
14. Sarkar, A., 2015: *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., New Delhi.
15. Misra, R. P. and Ramesh, A., 1989: *Fundamentals of Cartography*, Concept Publishing Company, New Delhi.

16. Kothari, C. R., 1993: *Research Methodology: Methods and Techniques*, 2nd ed., Wiley Eastern Ltd., New Delhi.
17. Misra, H.N. and Singh, V.P., 1998: *Research Methodology in Geography*, Concept Publishing Company, New Delhi.
18. Misra, R.P. (2002) *Research Methodology*, Concept Publications, New Delhi.

CBCS-based U.G. Course in Geography, 2019
Syllabus of Regular Skill Enhancement Course
Course Name: Environmental Impact Assessment
Paper Code: GGY-SE-6054
Total Credit: 4 (2+2)
Total Marks: 100
(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course Objectives:

- This is a skill enhancement paper which intends to familiarize the students with the concept of environmental impact assessment.
- It seeks to develop the skill among the students to do an EIA study, necessary steps, and procedures.

Course Outcomes:

- This paper will be useful for students in developing ideas on environmental impact assessment.
- This paper will also be useful for students who wish to work in environmental organizations, NGOs, environmental policy making, etc.

Part I: Theory
Credit: 2 (40 Marks)

(20 Classes of 1 hour duration each)

1. Nature and types of environmental impacts; Meaning, scope and nature of Environmental Impact Assessment (EIA). **(2classes)**
2. Origin and development of Environmental Impact Assessment; History of EIA in India; Current issues of environmental impact assessment. **(3classes)**
3. Screening procedures: Scoping and environmental baseline assessment; Consideration of alternatives, baseline formulation and parameter identification, and impact identification. **(3classes)**
4. Predicting Environmental Impacts and determining impact significance: Impact prediction, evaluation and mitigation. **(3classes)**
5. Managing project impacts-post decision monitoring: Participation (public hearing), presentation and review, Monitoring and auditing of EIA. **(4classes)**

6. Legal, Policy and Regulatory framework of environmental impact assessment in India; ESPOO convention, General case studies of EIA (Wetlands in urban environment, highway Construction, brick kilns, big dam, etc.). **(5classes)**

Part II: Field Knowledge Assessment and Project Report

Credit: 2 (40 Marks)

20 classes of two hour duration each)

Unit I: Practical Knowledge Evaluation (15 Marks)

The students while appearing in the practical examination shall have to answer three questions (each carrying 5 marks) relating to their practical field-based knowledge on different aspects of environmental impact assessment.

Unit II: Project Report Preparation and Evaluation (15 Marks)

The students will visit a nearby industry/development project/road construction project/ecologically sensitive area to make assessment of nature and magnitude environmental impacts in the respective area under the guidance of teacher(s) concerned and to prepare an environmental impact analysis report thereof.

1. Each student will have to prepare an EIA Report on a suitable problem under the guidance of respective teacher following appropriate methodology, data base and literature review.
2. Length of the Report: 25-30 printed A4 size pages (font size 12 in Times New Roman with 1.5 spacing) including text, tables, figures, references, etc.
3. The project report in binding form (Kutchra or Spiral binding) duly signed by the guide concerned has to be submitted to the department at least 3 days before the scheduled date of examination.
4. The content and quality of the project report shall be evaluated as an average of the marks out of 15 given by the external examiner and the teacher guide.

Unit III: Viva-voce on Project Report (10 Marks)

(The viva-voce shall be conducted by the external examiner)

Reading List:

1. Glasson, J. and Therivel, R., 2019. *Introduction to environmental impact assessment*. Routledge.
2. Canter, L.W., 1982. Environmental impact assessment. *Impact Assessment*, 1(2), pp.6-40.
3. Erickson, P.A., 1994. *A practical guide to environmental impact assessment*. Academic Press Inc..
4. Modak, P. and Biswas, A.K., 1999. *Conducting environmental impact assessment in developing countries*. United Nations University Press.
5. Trivedy, R. K., & Raman, N. S. (2002). *Industrial Pollution and Environmental Management*. Scientific Publishers.
6. Therivel, R., & Wood, G. (Eds.). (2017). *Methods of environmental and social impact assessment*. Routledge.
7. Lawrence, D. P. (2005). Environmental impact assessment: Practical solutions to recurrent problems, part 1. *Environmental Quality Management*, 14(4), 39-62.
