Syllabus for
BA/B.Sc.(Honours) 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

Department of Geography

GAUHATI UNIVERSITY

Guwahati-781014

September 2019

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CBCS-UG Geography Syllabus, 2019

Credit and Marks distribution scheme for CBCS Curriculum: Honours Course

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester I Credit: 22 Marks: 400	Ability enhancement Course	ENG-AE-1014/ ASM-AE-1014	English Communication Paper, Assamese/ MIL Communication paper	4	100
	Honours Core	GGY - HC – 1016	Geomorphology	4+2=6	100
		GGY - HC – 1026	Cartographic Techniques	4+2=6	100
	Generic Elective paper (Anyone)*	GGY- HG- 1016	Physical Geography	4+2=6	100
		GGY - HG – 1026	Geography of Tourism	4+2=6	100
Semester II Credit: 22 Marks: 400	Ability enhancement Course	ENV-AE-2014	Environmental Science	4	100
	Honours Core	GGY - HC - 2016:	Human Geography	4+2	100
		GGY - HC - 2026:	Climatology and Biogeography	4+2	100
	Generic Elective paper (Any one)*	GGY-HG-2016	Human Geography	4+2=6	100
		GGY - HG - 2026:	Disaster Management	4+2=6	100

Semester III Credit: 28 Marks: 500	Honours Core	GGY - HC - 3016:	Economic Geography	4+2	100
		GGY - HC - 3026:	Geography of India with Special Reference to North-East India	4+2	100
		GGY - HC - 3036:	Quantitative Methods in Geography	4+2	100
	Skill Enhancement Course (Any one)	GGY - SE - 3014:	River Basin Studies	2+2	100
		GGY - SE - 3024:	Thematic Cartography	2+2	100
	Generic Elective paper (Any one)*	GGY - HG - 3016:	Economic Geography	4+2=6	100
		GGY - HG - 3026:	Cartographic Methods	4+2=6	100
Semester IV Credit 28 Marks 500	Honours Core	GGY - HC - 4016:	Environmental Geography and Disaster Management	4+2	100
		GGY - HC - 4026:	Population and Settlement Geography	4+2	100
		GGY - HC - 4036:	Remote Sensing , GIS and GPS	4+2	100
	Skill Enhancement Course (Any one)	GGY - SE - 4014:	Advanced Statistical Techniques for Spatial Analysis	2+2	100
		GGY - SE - 4024:	Surveying Techniques	2+2	100
	Generic Elective Paper (Any one)*	GGY - HG - 4016:	Geography of India with Reference to N.E. India	4+2=6	100
		GGY - HG - 4026:	Population and Settlement Geography	4+2=6	100

Semester V Credit 24 Marks 400	Honours Core	GGY - HC - 5016	Social and Political Geography	4+2	100
		GGY - HC - 5026	Field Techniques in Geography	4+2	100
	Discipline Specific Elective (Group I) (Any One)	GGY - HE - 5016:	Geography of Transportation	4+2=6	100
		GGY - HE - 5026:	Regional Development and Planning	4+2=6	100
	Discipline Specific Elective (GroupII) (Any One)	GGY - HE - 5036:	Urban Geography	4=2=6	100
		GGY - HE - 5046:	Agricultural Geography	4+2=6	100
Semester VI Credit 24 Marks 400	Honours Core	GGY - HC - 6016	Geographical Thought	4+2	100
		GGY - HC - 6026	Research Methods in Geography and Project Work	4+2	100
	Discipline Specific Elective (Group I) (Any one)	GGY - HE - 6016:	Geography of Health	4+2=6	100
		GGY - HE - 6026:	Hydrology	4+2=6	100
	Discipline Specific Elective (Group II) (Any one)	GGY - HE - 6036:	Geography of Tourism	4=2=6	100
		GGY - HE - 6046:	Geography of Resources and Development	4+2=6	100

Syllabus for
BA/B.Sc.(Honours) Geography
Choice Based Credit System (CBCS)

Course effective from the academic year 2019-20

1st Semester

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

Department of Geography
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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: Honours Course (1stSemester)

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester I Credit: 22 Marks: 400	Ability enhancement Course	ENG-AE-1014/ ASM-AE-1014	English Communication Paper, Assamese/ MIL Communication paper	4	100
	Honours Core	GGY - HC – 1016	Geomorphology	4+2=6	100
		GGY - HC – 1026	Cartographic Techniques	4+2=6	100
	Generic Elective paper (Anyone)*	GGY- HG- 1016	Physical Geography	4+2	100
		GGY - HG – 1026	Geography of Tourism	4+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	1st	HonoursCore	GGY-HC-1016	Geomorphology (Theory + Practical)	100	60	20	10	6	4	4+2=6
Geography	1st	HonoursCore	GGY-HC-1026	Cartographic Techniques (Theory+Practical)	100	60	20	10	6	4	4+2=6
Geography	1st	Generic Elective	GGY-HG - 1016	Physical Geography (Theory + Practical)	100	60	20	10	6	4	6
Geography	1st	Generic Elective	GGY-HG - 1026	Geography of Tourism (Theory + Practical)	100	60	20	10	6	4	6

*Honours Geography students have to take generic subjects from other disciplines

NB: The examinations for the practicals for couse GGY-HC 1016 and GGY-HC-1026 will be held on same day. There will be two questions of 8 marks along with 2 marks for viva and 2 marks for practical notebook for each paper.Studentswillprepareonepracticalbookforevaluationhavingtwopartsforpaper GGY-HC-1016andGGY-HC-1026.Examinerswillsubmitmarksintwoseparatemarksfolios.

CBCS-based U.G. Course in Geography, 2019
Course Name: Geomorphology (Core Course)
Paper Code: GGY - HC – 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 thestudents.
- To make the students aware of the dynamic geomorphic processes responsible for the development of landforms of varied types andnature.
- To apply scientific knowledge on landform development based on geomorphic concepts, principles andtheories.

Course outcomes

- The students will learn that the earth is unstable and it is undergoing constant changes due to dynamic earth'sprocesses.
- The students will come to know about the meaning and scope of geomorphology as a major branch of PhysicalGeography.
- 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 in differentareas.

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

Sl. No.	Topic	No of Classes
1	Geomorphology: Nature, ScopeandSignificance	4classes
2	Structure and characteristics of the earth's crustandinterior	4classes
3	Forces of landform development: Endogenetic forces (folding, faulting earthquakes and volcanoes) and exogenetic forces (weathering, erosion and masswasting).	10classes
4	Earth Movements: Continental Drift Theory, Isostasy, Mountain building: views of Holmes and Kober,Platetectonics.	10classes
5	Concept of Cycleof Erosion: Davis and Penck, Landform development under Fluvial, Aeolian and Glacialconditions	12classes

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)

Sl. No.	Topic	No of Assignments
1	Study of Topographical Maps: Topographical map content and numbering system, the generalinterpretationoftoposheetsinrespectofphysicalcharacteristics.	3Assignments

Sl. No.	Topic	No of Assignments
2	Profile Drawing (serial, superimposed,projected andcomposite	3Assignments
3	Preparation of Slope Map / Relative Relief Map: Wentworth's method and Smith's method.	3Assignments
4	Delineation of drainage basin and drainage network, construction of cross and long profiles, stream ordering by Horton andStrahler'smethod	6Assignments
5	Interpretation of Geological map and Construction of cross –section (Two geological maps including one with interruptions) showing different sedimentarybeds.	2Assignments
Unit II: Practical Note-Book and Viva-voce (4 Marks)		
6	Evaluation of Practical Note-Book	(2 Marks)
7	Viva-voce	(2 Marks)

Reading List:

1 Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.

2 Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.

3 Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company

4 Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.

5 Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.

6 Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.

7 Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP

8 Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to Physical Geology, 4th Edition, John Wiley and Sons.

9 Strahler, A. N. and Strahler, A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York.

10 Thornbury W. D., 1968: Principles of Geomorphology, Wiley.

11 Steers, J.A., 1988: The Unstable Earth, Kalyani Publishers, New Delhi.

12 Monkhouse, F.J. and Wilkinson, H.R., 1989: Maps and Diagrams, B.I. Publications Ltd., Mumbai.

13 Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.

14 Singh, L.R., 2013: Fundamentals of Practical Geography, ShardaPustakBhawan, Allahabad

15 Sarkar, A., 2015: Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi

16 Misra, R. P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept Publishing Company, New Delhi

CBCS-based U.G. Course in Geography, 2019
Course Name: Cartographic Techniques (Core Course)
Paper Code: GGY-HC-1026
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives

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

Course outcomes

- Understandingtheimportanceofvariouscartographictechniquesingeographicalstudy
- General understanding of map type, map scale and mapcontent.
- An acquaintance of different cartographic techniques for representation of various facets of physical and human geographic data of anyarea.

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

Sl. No.	Topic	No of Classes
1	Cartography – Meaning, Development (Traditional and Modern Cartography) and Importance of CartographyinGeography.	8 classes
2	Shapeandsizeoftheearth,coordinatesystem(latitudeandlongitude)	8 classes
3	Maps: Types, scale and content, representation of point, line and area in maps	8 classes
4	Map Projections: Concept of Map Projection, Classification of Map Projections; Choice ofmapprojection.	10 classes
5	Thematic mapping: Conceptandtypes	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)

Sl. No.	Topic	No of Assignments
1	Construction of graphical scale (linear, diagonal and comparative); conversion of map scale	6Assignments
2	Construction of graticules of Zenithal Polar Gnomonic and Stereographic, Simple Conical with one standard parallel, Bonne's conical, Gall's Stereographic Cylindrical along with their properties, usesandlimitations.	5Assignments

Sl. No.	Topic	No of Assignments
3	Preparation of thematic maps (choropleth,isopleth and pie diagram) for representing various physicalgeographicdata.	4Assignments

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

6	Evaluation of Practical Note-Book	(2 Marks)
7	Viva-voce	(2 Marks)

Reading List:

1 Anson R. and Ormelling F. J., 1994: *International Cartographic Association: Basic Cartographic Vol.,* PergamanPress.

2 GuptaK.K.andTyagi,V.C.,1992:*WorkingwithMap*,SurveyofIndia,DST,NewDelhi

3 MisraR.P.andRamesh,A.,1989:*FundamentalsofCartography*,Concept,NewDelhi.

4 MonkhouseF.J.andWilkinsonH.R.,1973:*MapsandDiagrams*,Methuen,London.

5 RhindD. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International CartographicAssociation.

6 RobinsonA.H.,2009:*ElementsofCartography*,JohnWileyandSons,NewYork.

7 Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.

8 Sarkar, A. (2015) *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., NewDelhi

9 Singh, L.R., 2013: *Fundamentals of Practical Geography*, ShardaPustakBhawan, Allahabad.

10 Talukder,S.,2008:*IntroductiontoMapProjections*,EBHPublishers(India),Guwahati.

CBCS-based U.G. Course in Geography, 2019
Syllabus of Generic Elective Papers
Course Name: Physical Geography
Paper Code: GGY-HG-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 thestudents.
- To make the students aware of the dynamic geomorphic processes responsible for the development of landforms of varied types andnature.
- To impact applied scientific knowledge on landform development based on geomorphic concepts, principles andtheories.

Course outcomes

- The students will learn that the earth is unstable and it is undergoing constant changes due to dynamic earth'sprocesses.
- The students will come to know about the meaning and scope of geomorphology, which a major branch of PhysicalGeography.
- 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'ssurface.

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

Sl. No.	Topic	No of Classes
1	Physical Geography – Definition and Scope, Components of EarthSystem	4 Classes
2	Atmosphere – Composition and the vertical structure, Heat Balance, Global Circulation Pattern, Monsoon, Koppen'sClimaticClassification.	10 Classes
3	LithosphereInternalStructureofEarthbasedonSeismicEvidence	8 Classes
4	Endogenetic and Exogenetic processes, Works of River, Fluvial Cycle of Erosion – Davis	8 Classes
5	Hydrosphere: hydrological cycle, ocean bottom relief features, oceanic deposits, tides andcurrents.	10 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)

Sl. No.	Topic	No of Assignments
1	Relief representation from the topographical sheet (v-shaped valley, u-shaped valley, conical hill, cliff,uniformslope).	6 Assignments

Sl. No.	Topic	No of Assignments
2	Profile Drawing (Serialandsuperimposed).	4Assignments
3	Rainfall-Temperature Graph, ClimographandHythergraph.	3Assignments
4	Hypsometric andbathymetriccurve.	2Assignments
Unit II: Practical Note-Book and Viva-voce (4 Marks)		
6	Evaluation of Practical Note-Book	(2 Marks)
7	Viva-voce	(2 Marks)

Reading List:

1 Conserva H. T., 2004: Illustrated Dictionary of Physical Geography, Author House, USA.

2 Gabler 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.

CBCS-based U.G. Course in Geography, 2019
Syllabus of Generic ElectivePaper
Course Name: Geography of Tourism
Paper Code: GGY - HG -1026
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- Thispaperintroducesthestudentswiththefieldoftourismfromthelensofgeography.
- 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 global to locallevels.

Course Outcomes

- The paper will be useful for students in developing ideas on how geographical factors determine tourism activities and how geographers seek to address issues of development and carrying capacities of varied environments. It will also build skills among students to engage them to work with tourism/eco-tourism planningexercises.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Nature and Scope: Concept of tourism; Issues relating to recreation and leisure inter-relations; Geographical parameters of tourism as postulated by Robinson. **(4classes)**
2. Types of Tourism: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage. **(6 classes)**
3. Recent Trends of Tourism: International and Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings Incentives Conventions and Exhibitions(MICE). **(12classes)**
4. Impact of Tourism on Economy, Environment and Society. **(6classes)**
5. Tourism development in India: Tourism Infrastructure; Case Studies of tourism development in different geographical contexts: Himalayas, Desert, North-East India and Coastal Areas; National Tourism Policy. **(12classes)**

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 growth of tourist arrivals (International and domestic) in the India/ Assam since

1960 using moving average method. **(2Assignments)**

2. Trend of tourist arrivals in the north-eastern states of India since 1980 in comparison to a top ranking tourist arriving state of India using Band-graph. **(2Assignments)**
3. Representation of relationship among the rainfall, temperature and tourist arrival for any year or a specific period for Assam and Meghalaya by using appropriate carto-statistical technique. **(2Assignments)**
4. Preparation of a map of Assam to show important tourist destinations along with their road, railway and air connectivity. **(2Assignments)**
5. Preparation of a tourist map of N.E. India showing inflow of tourists (domestic and international) to major national parks and wildlife sanctuaries. **(2Assignments)**

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. Bhattacharya, P. (2011): Tourism in Assam: Trend and Potentialities, Banimandia, Guwahati
2. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, NewDelhi.
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. Chapter2.
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), NewDelhi
10. UNWTO: Tourism Barometer (available in their web portal to have a fresh glimpse of global tourism statistics/ other relevant sites may also beconsulted).

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Syllabus for
BA/B.Sc.(Honours) Geography
Choice Based Credit System (CBCS)

Course effective from the academic year 2019-20

IInd Semester

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

GAUHATI UNIVERSITY
Guwahati-781014
September 2019

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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: HonoursCourse (IIndSemester)

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
	Honours Core	GGY - HC – 2016	Human Geography	4+2=6	100
		GGY - HC – 2026	Climatology and Biogeography	4+2=6	100
	Generic Elective paper (any one)	GGY- HG- 2016	Human Geography	4+2=6	100
		GGY - HG - 2026:	Disaster Management	4+2=6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	GD/Assignments	Attendance	
Geography	IInd	HonoursCore	GGY-HC-2016	Human Geography (Theory+ Practical)	100	60	20	10	6	4	4+2=6
Geography	IInd	HonoursCore	GGY-HC-2026	Climatology and Biogeography (Theory+ Practical)	100	60	20	10	6	4	4+2=6
Geography	IInd	Generic Elective (Any one)	GGY-HG-2016	Human Geography (Theory+ Practical)	100	60	20	10	6	4	4+2=6
			GGY-HG-2026	Disaster management (Theory+ Practical)	100	60	20	10	6	4	4+2=6

*Honours Geography students have to take generic subjects from other disciplines

NB:TheexaminationsforthepracticalsforcouseGGY-HC2016andGGY-HC-2026andGGY-HC-2036willbeheldontwoseparatedays.Therewillbetwo questions of 8 marks along with 2 marks for viva and 2 marks for practical note book for each paper. Students will prepare one practical book for evaluationhavingthreepartsforpaperGGY-HC-2016andGGY-HC-2026GGY-HC-2036.Examinerswillsubmitmarksinthreeseparatemarksfolio.

Core Course

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

Course Name: Human Geography
Paper Code: GGY-HC–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-environmentalrelationshipsandhowaspatialperspectiveshapestheserelationships.

Courseoutcomes

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

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

1. Defining the field of human geography: Meaning and Scope; Nature of human geography and its relation with other socialsciences. **(5classes)**
2. SchoolsofhumangeographyHumanEcology,LandscapeandLocational.**(5classes)**
3. Paradigms of man-environment relationship study: Determinism, Possibilism, Neodeterminism, andCulturalDeterminism. **(8classes)**
4. Man and environment relationship: Impact of environment on man in different geographical conditions; Impact of man and its activities on environment in different parts of the world; Impact of Population growth on development and environmental degradations; House types in differentenvironmentalconditions. **(8classes)**
5. Man and culture: Ethnicity and Race; Global patterns of racial composition of population and associated characteristics of major racial groups; Global patterns of religious and linguistic composition of population; Tribal people of India and their socio-economic characteristics. **(7classes)**
6. Human Settlements: Rural and urban settlements - Origin, growth and morphological characteristics; Types/Patterns of rural settlements; Burgess and Hoyt theories of internal structureoftown;patternsofurbanization:GlobalandIndianscenario. **(7classes)**

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. TraditionalhousetypesofselectedethnicgroupsofN.E.IndiaandIndia.**(2Assignments)**
2. Trend of population growth in the world in relation to five most populous countries of the world usinglinegraph. **(2Assignments)**
3. Religious and Linguistic composition of population in the world and five most populous countries of the world usingpie-graph. **(2Assignments)**
4. Spatial patterns of scheduled tribes population and urban population in India at state level throughchoroplethmap(basedonpercentageandLQ). **(2Assignments)**
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); Drawing of internal model structure of towns according to Burgess andHoyt. **(4Assignments)**
6. Mappingofdistributionofmajorracialandlinguisticgroupsofpopulationintheworld.

(2Assignments)

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

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

Reading List:

1. Chandna, R.C. (2010) Population Geography, KalyaniPublisher.
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. JohnstonR;GregoryD,PrattG.etal.(2008)TheDictionaryofHumanGeography, BlackwellPublication.
5. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, NewYork.
6. Kaushik, S.D. (2010) ManavBhugol, Rastogi Publication,Meerut.
7. Maurya,S.D.(2012)ManavBhugol,ShardaPustakBhawan.Allahabad.
8. Hussain, Majid (2012) ManavBhugol. Rawat Publications,Jaipur.

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CBCS-based U.G. Course in Geography, 2019
Syllabus of Core Course
Course Name: Climatology and Biogeography
Paper Code: GGY-HC-2026
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 the rationale underlying climatological studies ingeography
- It seeks to develop new insights among students on the relevance of climatic variable stangenting on climatechange.
- This paper intend to develop an understanding in the physical and human factors responsible for the distribution, conservation, and restriction of living organisms on the earthsurface.

Course outcomes:

- The paper will be useful for students in developing ideas on climate related aspects of geographicalanalyses.
- The paper will help provide theoretical insights and perspectives to students if they wish to pursue a research programme infuture.
- Students will develop a basic understanding of the introductory concepts in biogeography.
- The paper be very useful for students preparing for UGC NET-JRF / SLET exam and other competitive exams including civilservices.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

Group A: Climatology (35 Marks) (24 Classes)

1. Meaning of climatology and its significance in geographical studies. **(2 classes)**
2. Atmospheric Composition and Structure; and their variation with altitude, latitude and season. **(3 classes)**
3. Insolation and Temperature; Factors and Distribution and Heat Budget. **(3 Classes)**
4. Atmospheric Pressure and Wind system; Planetary Winds, Forces affecting Winds, General Circulation, Jet Streams **(5 Classes)**
5. Atmospheric Moisture – Evaporation, Humidity, Condensation, Fog, Precipitation Types, Stability and Instability. **(5 Classes)**

6. Climatic classification of Koppen and Trewartha; Monsoon - Origin and Mechanism. **(4 Classes)**
7. Cyclones and anticyclones; Tropical Cyclones, Extra-Tropical Cyclone.**(2 Classes)**

Group B: Biogeography (25 marks) (16 classes)

1. Meaning, Scope and Significance of biogeography **(2 Classes)**
2. Ecology and Ecosystem, Structure and functioning of ecosystem **(4 Classes)**
3. Global distribution of major plants and animals. **(4 Classes)**
4. Biomes and Biodiversity hotspots of the world. **(2 Classes)**
5. Soil as a component of environment , soil formation process and factors , soil composition and horizon, Soil types and their distribution in India **(4 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, taking one from Climatology and one from Biogeography)

Climatology

1. Interpretation of Indian Weather map for Monsoon and non–monsoon seasons/months basedonvariousweathersymbolsdepictedonmaps. **(2Assignments)**
2. Preparation of weather reports of Indian subcontinent by analyzing the weather satellite images of at least three consecutive days (e.g. INSAT 3D, NOAAsatellite).

   https://mausam.imd.gov.in/imd_latest/contents/satellite.php#. **(3 Assignments)**
3. Preparation of rainfall-temperature graphs; hythergraph, climograph and ergograph taking data fromIndia/N.E.India/Assam **(3Assignments)**
4. Calculation of average annual rainfall and variability of annual rainfall and preparation ofrainfalldistributionandvariabilitymaps(usingisopleths).**(2Assignments)**

Biogeography

5. Mapping of protected areas (National park, biosphere reserve and wildlife sanctuary) of Assam/ N.E.India/India. **(3Assignments)**
6. Mapping of phyto-geographic and zoogeographic regions of theworld.**(2Assignments)**
7. Mapping of Biodiversity hotspots of theworld. **(1Assignment)**
8. Mapping of Soil types of Assam/N.E. India andSoilhorizons.**(2 Assignments)**

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

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

Reading List:

1. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
3. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India,New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, NewJersey.
5. Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, NewDelhi.
6. TrewarthaG.T.andHorneL.H.,1980:*AnIntroductiontoClimate*,McGraw-Hill.
7. Gupta L S(2000): JalvayuVigyan, Hindi MadhyamKaryanvayNidishalya, Delhi VishwaVidhyalaya,Delhi
8. Lal, D S (2006): JalvayuVigyan, PrayagPustakBhavan,Allahabad
9. Vatal, M (1986): BhautikBhugol, Central Book Depot,Allahabad
10. Singh, S (2009): JalvayuVigyan, PrayagPustakBhawan,Allahabad
11. Soil and Biogeography, Kalyani Publishers., ManideepRaj
12. Cox, C.B., Moore, P.D. and Ladle, R., 2016. *Biogeography: an ecological and evolutionary approach*. John Wiley &Sons.

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Generic Elective Course for Honours
CBCS-based U.G. Course in Geography, 2019
Syllabus of Generic Elective Course
Course Name: Human Geography
Paper Code: GGY-HG-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 theserelationships.

Course outcomes:

- The paper will be useful for students in developing ideas on human-environment issuesthat geographers usually address in theanthropocene.
- The paper will be useful for students preparing for various competitive examinations including the civilservices.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Fieldofhumangeography:meaning,scopeandimportance. **(8classes)**
2. Concepts of man-environmentrelationship: Determinism andPossibilism. **(8classes)**
3. Impact of environment on man; impact of man on environment; population growth and environmental changes; house types in different environmentalconditions. **(10classes)**
4. Globalpatternsofracial,religiousandlinguisticcompositionofpopulation. **(7classes)**
5. Origin, growth and characteristics of rural and urban settlements; Patterns of rural settlements;PatternsofurbanizationinIndiaandN.E.India. **(7classes)**

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. TraditionalhousetypesofselectedethnicgroupsofNorth-EastIndia**.(1assignment)**

2. Trend of population growth in the world in relation to five most populous countries of the world using linegraph.. **(1assignment)**
3. Religious composition of population in the world and three most populous countries of the worldusingpie-graph. **(2assignments)**
4. Spatial patterns of urban population in Assam and N.E. India at state level through choroplethmap. **(2assignments)**
5. Drawing of major rural settlement types/patterns; Morphological diagram of a village andatown(preferablybasedonstudent'sownvillageandtown).**(3 assignments)**

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. (2010) Population Geography, KalyaniPublisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications,Jaipur
3. Daniel,P.A.andHopkinson,M.F.(1989)TheGeographyofSettlement,Oliver&Boyd, London.
4. JohnstonR;GregoryD,PrattG.etal.(2008)TheDictionaryofHumanGeography,
5. Blackwell Publication.
6. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, NewYork.
7. Kaushik, S.D. (2010) ManavBhugol, Rastogi Publication,Meerut.
8. Maurya,S.D.(2012)ManavBhugol,ShardaPustakBhawan.Allahabad.
9. Hussain, Majid (2012) ManavBhugol. Rawat Publications,Jaipur.

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CBCS-based U.G. Course in Geography, 2019
Syllabus of Generic Elective Course
Course Name: Disaster Management
Paper Code: GGY-HG-2026
Total Credit: 6 (4+2)
Total Marks: 100

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

Course objectives:

- To provide students an exposure to disasters, their significance and types on Spatio-temporaldimensions.
- To develop basic ability to respond to their surroundings with potential disaster response in areas where they live, with duesensitivity
- To provideinformation and knowledge about how disasters can be checked andmanaged.

Course outcomes:

- The students will be able to analyse the causes and management issues related to disasters taking place in students' ownlocalities.
- The students will be able to differentiate the types of disasters, causes and their impact on environment and society along with various disaster management strategies and their applicability in differentsituations.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Meaning and Definition: Hazard, Disaster and Vulnerability; Types of Disasters- Flood, Land Slide and Mass Movement, Cyclone, Drought, Earthquake and Tsunami, Volcanic eruptions,Avalanche,Famines. (10 Classes)
2. Classification of Disaster: Manmade and Natural disasters; Their Causes, Processes and impact on landandPeople. (8 Classes)
3. Disasters in India: Types and Geographical Dimensions with special referenceto Assam. (8 Classes)
4. Approaches to Disaster Risk Reduction: Mitigation and Preparedness, Role of UNDP, NDMA, NIDM and ADMA; Do's and Don'ts Pre During and Post Disasters Indigenous Knowledge and Community-BasedDisasterManagement. (8 Classes)
5. Reciprocal Relationship of Development and Disaster; Sustainable Disaster Management. (6Classes)

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 of world and India showingDistributionofDisasters. (2 Assignments)
2. CartographicrepresentationofmajordisastersIndiaandAssamatleast30years. (2 Assignments)
3. Preparation of flood hazard zonation mapofIndia/Assam. (2Assignments)
4. Representationoffault,thrustsandearthquakezonationmapofNorthEastIndia. (1 Assignment)
5. Preparation of Potential Tsunami-genic mapofWorld/India. (2Assignments)
6. Mapping of world Major and MinorPlates. (1Assignment)

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. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, NewDelhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and GeologicalDisasters, Macmillan,Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, NewDelhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, NewDelhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications.Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India(www.ikbooks.com).

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Syllabus for
BA/B.Sc.(Honours) Geography
Choice Based Credit System (CBCS)

Course effective from the academic year 2019-20

IIIrd Semester

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

GAUHATI UNIVERSITY
Guwahati-781014
September 2019

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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: Honours Course (IIIrd Semester)

Semester	Course Type	Paper Code	Paper Name	Credits	Full Marks
Semester III Credit: 28 Marks: 500	Honours Core	GGY - HC - 3016:	Economic Geography	4+2=6	100
		GGY - HC - 3026:	Geography of India with Special Reference to North- East India	4+2=6	100
		GGY - HC - 3036:	Quantitative Methods in Geography	4+2=6	100
	Skill Enhancement Course (any one)	GGY - SE - 3014:	River Basin Studies	2+2=4	100
		GGY - SE - 3024:	Thematic Cartography	2+2=4	100
	Generic Elective paper (any one)	GGY - HG - 3016:	Economic Geography	4+2=6	100
		GGY - HG - 3026:	Cartographic Methods	4+2=6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External		Internal			
						Theory	Practical	Sessional	GD/Assignments	Attendance	
Geography	IIIrd	Honours Core	GGY-HC-3016	Economic Geography (Theory + Practical)	100	60	20	10	6	4	4+2=6
Geography	IIIrd	Honours Core	GGY-HC-3026	Geography of India with special reference to North-East India (Theory + Practical)	100	60	20	10	6	4	4+2=6
Geography	IIIrd	Honours Core	GGY-HC-3036	Quantitative Methods in Geography (Theory + Practical)	100	60	20	10	6	4	4+2=6
Geography	IIIrd	Skill Enhancement Course	GGY - SE - 3014	River Basin Studies (Theory + Practical)	100	60	20	10	6	4	2+2=4
Geography	IIIrd	Skill Enhancement Course	GGY - SE - 3024	Thematic Cartography (Theory + Practical)	100	60	20	10	6	4	2+2=4
Geography	IIIrd	Generic Elective*	GGY-HG-3016	Economic Geography (Theory + Practical)	100	60	20	10	6	4	4+2=6
Geography	IIIrd	Generic Elective*	GGY-HG-3026	Cartographic Methods (Theory + Practical)	100	60	20	10	6	4	4+2=6

*Honours Geography students have to take generic subjects from other disciplines

NB:Theexaminationsforthepracticalcouses onGGY-HC3016,GGY-HC-3026andGGY-HC-3036 will be held for twodays.Therewillbetwoquestionsof8 markseach alongwith2marksforvivaand2marksforpracticalnotebookforeachpaper.The studentswillprepareonepracticalnote-bookforevaluationhavingthree partsforpaperGGY-HC-3016,GGY-HC-3026andGGY-HC-3036.Examinerswillsubmitmarksinthreeseparatemarksfolio.

Core Course

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

Syllabus of Core Course

Course Name: Economic Geography

Paper Code: GGY-HC-3016

Total Credit: 6 (4+2)

Total Marks: 100

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

***Course Objectives**:*

- This is a core paper that intends to introduce students to the principles of economic geography and associated patterns and processes of major economic activities in the world.
- It seeks to develop new insights among students on the relevance of economy geography and associated problems in contemporarytimes.

***Course Outcomes**:*

- The paper will be useful for students in developing ideas on how geographical aspects organise economic space and will offer perspectives to students if they wish to pursue a researchprogramme.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civilservices.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Meaning, scope and approaches ofEconomicGeography. **(3classes)**

2. Economic activity: meaning and classification; Production system: Role of land, labour andcapital. **(3classes)**

3. Agriculture: Factors influencing agriculture; types of agriculture; Von Thunen's model of agricultural location; Factors influencing cultivation of wheat, rice, coffee and tea, and theirdistributionandproductionindifferentpartsoftheworld. **(10classes)**

4. Manufacturing: Factors influencing industrial location; Classification of industry; Weber's theory of industrial location; Factors, distribution and production of iron and steel, cotton textileandITindustriesintheworld;Specialeconomiczonesandtechnologyparks.

(10classes)

5. Transport system: Modes of transport, factors influencing transport development and role of transport in resource mobilization and economicdevelopment. **(7classes)**

6. Trade: Factors influencing trade in different countries of the world; Trade relations of India with the countries like USA, Russia andJapan. **(7classes)**

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. Trend of rice, wheat and iron & steel production in the world/USA/India since 1960 using moving average and leastsquaresmethods. **(4assignments)**

2. Trend of production of wheat, rice, maize and barley in the world/USA since 1960 using Band-graph. **(2assignments)**

3. Trend of balance of trade relations (export and import value) of India with USA, China and Japaninrespectofmajorcommoditiessince1990usingBar-graph.**(2 assignments)**

4. Regional variation in fertilizer consumption and agricultural productivity in rice, wheat and barleyinselectedcountriesoftheworldusingBar-graph. **(1assignment)**

5. Inter-state/Inter-nation volume of movement of selected commodities and Inter-city movementoftraffic/businN.E.Indiathroughflowcartogram.**(2assignments)**

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. Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, NewJersey.
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction,Wiley-Blackwell.
3. HodderB.W.andLeeRoger,1974:EconomicGeography,TaylorandFrancis.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton UniversityPress.
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 andFrancis.
8. Willington D. E., 2008: Economic Geography, HusbandPress.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: TheOxford
10. Saxena, H.M., 2013: Economic Geography, Rawat Publications,Jaipur.

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

Syllabus of Core Course

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

Paper Code: GGY-HC-3026

Total Credit: 6 (4+2)

Total Marks: 100

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

Course objectives:

- ThisisacorepaperwhichintendstointroducestudentstoIndiaasageographicalentity.
- 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 outcomes:

- 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 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. India's location and its significance; administrative divisions. **(2classes)**

2. Physical setting: Physiographic divisions and their characteristics; Climate and its seasonal and regional characteristics; vegetation; soil types and its distribution. **(8classes)**

3. Population: Trend of growth, spatial variation in growth and distribution; Age and sex composition; Linguistic and religious composition. **(6classes)**

4. Agriculture: Regional distribution and production patterns of rice, wheat and millet. **(4classes)**

5. Industry: Distribution and production patterns of iron and steel, cotton textile and fertilizers; Role of transport system in industrial development. **(6classes)**

6. 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, distribution and ethnic composition.**(14 classes)**

Part II: Practical and Field Report
Credit: 2 (20 Marks)
(20 classes of 2 hour duration each)

Unit1: Practical Works (10 marks)

(2 Questions of 5 markseach)

1. Trend of population growth and growth rates in India and N.E. India since 1901 using Census data(Source:censusindia.gov.in). **(2assignments)**
2. Choroplethmappingtoshowspatialvariationindecennialpopulationgrowthrate inIndia. **(1assignment)**
3. Spatial variation in the patterns of religious composition of population in India and Social compositionofpopulation(SC,STandGeneral)inN.E.Indiausingpie-graph. **(2assignments)**
4. Trend of foodgrains production (rice, wheat, maize, barley, jowar and bajra) in India since 1950-51usingband-graph. **(1assignment)**
5. Map showing distribution of major tribal groups in North-EastIndia. **(1assignment)**

Unit2: Field Report (6 Marks)

6. Preparation of field report based on field study of observational knowledge about the geographicalpersonalityofanypartofIndia/N.E.Indiaundertheguidanceofteacher(s). (Evaluation of Field Report: 4 marks and Viva-voce: 2 marks)

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. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, NewDelhi.
2. Johnson,B.L.C.,ed.2001.GeographicalDictionaryofIndia.VisionBooks,NewDelhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An Intenational Perspective. Vol. 3 –IndianPerspective.
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, GyanodayaPrakashan,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 & NewDelhi.

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, NewDelhi.
14. Taher, M and Ahmed, P.: Geography of North East India, Mani ManikPrakash, Guwahati.
15. Das,M..M.:PeasantAgricultureinAssam,Inter–IndiaPublications,NewDelhi.
16. Gopal Krishnan, R : Geography of North EastIndia
17. Bhattacharya, P.2006 : Trend in Tourism Potentiality, BaniMandir,Guwahati
18. Bhagabati,A.K.(ed):BiodiversityofAssam,EasternBookHouse,Guwahati
19. Bhattacharyya, N.N. : North East India, Rajesh Publication, NewDelhi
20. Srivastava, S.C. : Demographic Profile of N.E. India, MittalPublications.

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

Syllabus of Core Course

Course Name: Quantitative Methods in Geography

Paper Code: GGY-HC-3036

Total Credit: 6 (4+2)

Total Marks: 100

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

Course Objectives:

The paper Quantitative Methods in Geography throws light on the importance of data in geography. It deals with the methods and techniques of data collection, data tabulation, data interpretation and analysis through the application of some basic statistical measures. This paper provides an understanding of the pure and applied nature of geography along with the key elements in thediscipline.

Course Outcomes:

- Thorough understanding of the statistical methods and techniques used in geographical studies;
- Understanding of tabulation, analysis and interpretation of geographicaldata.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Quantification and its significance in geographical study; advantages and limitations of quantitative methodsingeography. **(4classes)**
2. Geographical Data: Nature, types and sources; scale of measurement (nominal, ordinal, intervalandratio). **(4classes)**
3. Measures of central tendency (mean, median and mode) and dispersion (range, quartile deviation, mean deviation, standard deviation and coefficient of variation) and their applications in geographicaldataanalysis. **(8classes)**
4. Sampling techniques: meaning of sampling and its need; types of sampling (simple random andstratifiedrandom). **(6classes)**
5. Time series analysis and its applications in geographical studies; Basic techniques of timeseriesdataanalysis(semi-average,movingaverageandleastsquares).**(6classes)**
6. 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 dataanalysis.**(12 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. Tabulation/Grouping of geographical data for making frequency distribution table; Preparation of Histogram, Frequency Polygonand FrequencyCurve.**(1+1assignments)**
2. Computation of mean, median and mode for ungrouped and grouped geographical data; Determination of median and mode using graphical methods; Determination of the locationofspatialmeancentreofsettlements(usingcentrographicmeasure).

(2+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. **(1+1assignments)**

4. Analysis of time series data of some geographical phenomena (rainfall, production, export value, import value, etc) using moving average and least squares methods.

(2 assignments)

5. 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 foranysetofbi-variatedatarelatingtomeaningfulgeographicalphenomena.

(2+1 assignments)

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. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford UniversityPress.
2. Sarkar, A. (2013) *Quantitative Geography: techniques and presentations*. Orient Black Swan Private Ltd., NewDelhi.
3. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, NewYork.
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, NewDelhi.
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.

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

Syllabus of Skill EnhancementPapers

Course Name: River Basin Studies

Paper Code: GGY–SE-3014

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 50, Practical: 50)

Course Objectives:

- The main objective of this course is to develop understanding among the honours students about the river basin and the functioning of itselements.
- To train the students for acquiring necessary skill for understanding geomorphology in the field.

Course Outcomes:

- At the end of the course, the students will be able to learn use of a few instruments like rotameter, planimeter, Dumpy Level,etc.
- To learn the basics of morphometric analysistechniques.
- To acquaint with the field methods of river studies in across-section.

Part I: Theory

Credit: 2 (50 Marks)

(20 classes of 1 hour duration each)

1. Concept of river basin, catchment area andwatershed. **(3classes)**
2. Concept of fluvial system operating in a river basin; Input-output components in relation tothehydrologicalcycle;Riverbasinasafundamentalgeomorphicunit. **(5classes)**
3. Understandingthelinear,arealandreliefaspectsofariverbasin. **(4classes)**
4. Concept of sediment production zone, sediment transfer zone and sediment deposition zone andassociatedprocesses. **(4classes)**
5. Sources of water flow in a river basin; Concept of basin runoff and channel discharge; factors affectingbasinrunoff. **(4classes)**

Part II: Practical

Credit: 2 (50 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. Delineation of a river basin along with drainage network from topographical sheet and preparation of a basin physiography map; conduct of morphometric analysis: Computationofbifurcationratio,lengthratioandbasincirculatoryratio.**(4 assignments)**

2. Relationship analysis using semi-log graph paper between stream order and stream number; stream order and average stream length; stream order and drainage area.

(3assignments)

3. Cross-sectional survey of a river and construction of profiles at least at three points (Field-based assignment) **(1assignment)**

4. Preparation of stream frequency and drainage density maps of a river basin.

(2 assignments)

5. Estimation of basin runoff for winter and summer months taking monthly water discharge data and preparation of a hydrograph. **(1assignment)**

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. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, NewDelhi.
2. BridgesE.M.,1990:WorldGeomorphology,CambridgeUniversityPress,Cambridge.
3. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan PublishingCompany
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. KnightonA.D.,1984:FluvialFormsandProcesses,EdwardArnoldPublishers,London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition,OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to Physical Geology, 4th Edition, John Wiley andSons.
9. Strahler, A. N. and Strahler, A. H., 2008: Modern Physical Geography, John Wiley & Sons, NewYork.
10. Thornbury W. D., 1968: Principles of Geomorphology,Wiley.
11. Steers, J.A., 1988: The Unstable Earth, Kalyani Publishers, NewDelhi.
12. Monkhouse, F.J. and Wilkinson, H.R., 1989: Maps and Diagrams, B.I. Publications Ltd., Mumbai.
13. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
14. Singh, L.R., 2013: Fundamentals of Practical Geography, ShardaPustakBhawan, Allahabad.
15. Sarkar, A., 2015: Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., NewDelhi
16. Misra, R. P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept Publishing Company, NewDelhi.

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Skill Enhancement Course for Honours
CBCS-based U.G. Course in Geography, 2019
Syllabus of Skill Enhancement Paper
Course Name: Thematic Cartography
Paper Code: GGY–SE-3024
Total Credit: 4 (2+2)
Total Marks: 100
(Theory: 50, Practical: 50)

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 (50 Marks)
(20 classes of 1 hour duration each)

1. Thematic cartography: meaning and importance. **(2classes)**
2. Thematic Mapping: Principles and techniques of representation of physical and human geographic data (point,line,polygon). **(5classes)**
3. Concepts and principles of cartographic overlayandmapping. **(3classes)**
4. Conceptofbasemap;Types of thematic map;mapreading;mapdesign,layoutandtypography. **(5classes)**
5. Techniques of interpretation of Topographical maps, satellite imageries and aerial photographs forthematicmapping. **(5classes)**

Part II: Practical

Credit: 2 (50 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. Preparation of an administrative/physical map of India containing necessary map elements using appropriate typography. **(1Assignment)**
2. Preparation of thematic maps for representing human geographic data using choropleth, isopleth, dot, sphere and proportionate circle techniques. **(5Assignments)**
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**.** **(2Assignments)**
4. Locational accessibility mapping based on travel time through isochronic cartogram.

(1Assignment)

5. Preparation of landuse/landcover 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.,* PergamanPress.
2. GuptaK.K.andTyagi,V.C.,1992:*WorkingwithMap*,SurveyofIndia,DST,NewDelhi.
3. MisraR.P.andRamesh,A.,1989:*FundamentalsofCartography*,Concept,NewDelhi.
4. MonkhouseF.J.andWilkinsonH.R.,1973:*MapsandDiagrams*,Methuen,London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International CartographicAssociation.
6. RobinsonA.H.,2009:*ElementsofCartography*,JohnWileyandSons,NewYork.
7. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
8. Sarkar, A. (2015) *Practical Geography: A Systematic Approach*. Orient Black Swan Private Ltd., NewDelhi
9. Singh, L.R., 2013: *Fundamentals of Practical Geography*, ShardaPustakBhawan, Allahabad.
10. Talukder,S.,2008:*IntroductiontoMapProjections*,EBHPublishers(India),Guwahati.

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Generic Elective Course for Honours

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

Syllabus of Generic Elective Papers

Course Name: Economic Geography

Paper Code:GGY-HG-3016

Total Credit: 6 (4+2)

Total Marks: 100

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

***Course Objectives**:*

- This is a generic elective paper with a view to make the students of other honours subjects understand the basic principles of economic geography and associated patterns and processes of major economic activities in theworld.
- It seeks to develop insights among the students about the relevance of studying economic geography and understanding contemporary economic problems from geographical perspective.

***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 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Meaning and scope of Economic Geography. **(3classes)**

2. Economic activity: meaning and classification; Production system: Role of land, labour and capital; Resource: Concept and classification. **(6classes)**

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, distributionandproductionofironandsteelandcottontextileindustryintheworld.

(10classes)

5. Transport system: Modes of transport, factors influencing transport development and role of transport in resource mobilization and industrial development. **(6classes)**

6. Trade: Factors influencing trade; Trade relations of India with the countries like Bhutan, Nepal and Bangladesh. **(5classes)**

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. Trend of rice, wheat and iron & steel production in the world/India since 1960 using moving average method. **(3assignments)**
2. Trend of production of wheat, rice, maize and barley in the world/India since 1960 using Band-graph. **(2assignments)**
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.

   (2assignments)
4. Regional variation in fertilizer consumption and agricultural productivity in rice, wheat and barley in selected countries of the world using Bar-graph. **(1assignment)**
5. Inter-state and Inter-nation volume of movement of selected commodities through flow cartogram. **(2assignments)**

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

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

2. Viva-voce (2 marks)

ReadingList:

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 andFrancis.
4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton UniversityPress.
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 andFrancis.
8. Willington D. E., 2008: Economic Geography, HusbandPress.
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.

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Generic Elective Course for Honours

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

Syllabus of Generic Elective Papers

Course Name: Cartographic Methods

Paper Code:GGY-HG-3026

Total Credit: 6 (4+2)

Total Marks: 100

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

***Course Objectives**:*

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

***Course Outcomes**:*

- Understandingtheimportanceofvariouscartographictechniquesingeographicalstudy
- General understanding of map type, map scale and map content.
- An acquaintance of different cartographic techniques for representation of various facets of physical and human geographic data of any area.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Meaningofcartographyanditsneedingeography;TraditionalversusDigitalcartography. **(6classes)**

2. Shape and size of the earth; Coordinate system(latitude and longitude). **(4classes)**

3. Map: Meaning, scale and classification; map as a tool in spatial analysis. **(6classes)**

4. Map Projection: meaning and classification (zenithal, conical and cylindrical); choice of map projection. **(16classes)**

5. Thematic map: meaning and types; Choropleth and Isopleth mapping. **(8classes)**

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. Construction of graphical scale; Computation work for conversion of mapscale

(2+4Assignments)

2. 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 stereographiccylindrical. **(4Assignments)**

3. Representation of physical and human geographic data through Choropleth and Isopleth mapping andPiecartogram. **(6Assignments)**

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. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, NewDelhi.
2. BridgesE.M.,1990:WorldGeomorphology,CambridgeUniversityPress,Cambridge.
3. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan PublishingCompany
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. KnightonA.D.,1984:FluvialFormsandProcesses,EdwardArnoldPublishers,London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition,OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to Physical Geology, 4th Edition, John Wiley andSons.
9. Strahler, A. N. and Strahler, A. H., 2008: Modern Physical Geography, John Wiley & Sons, NewYork.
10. Thornbury W. D., 1968: Principles of Geomorphology,Wiley.
11. Steers, J.A., 1988: The Unstable Earth, Kalyani Publishers, NewDelhi.
12. Monkhouse, F.J. and Wilkinson, H.R., 1989: Maps and Diagrams, B.I. Publications Ltd., Mumbai.
13. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.

14. Singh, L.R., 2013: Fundamentals of Practical Geography, ShardaPustakBhawan, Allahabad.
15. Sarkar, A., 2015: Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., NewDelhi
16. Misra, R. P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept Publishing Company, NewDelhi.

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Syllabus for
BA/B.Sc.(Honours) Geography
Choice Based Credit System (CBCS)

Course effective from the academic year 2019-20

4th Semester

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

Department of Geography
GAUHATI UNIVERSITY
Guwahati-781014

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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: Honours Course (4thSemester)

Semester IV Marks 500 Credit 28	Honours Core	GGY - HC - 4016:	Environmental Geography and Disaster Management	4+2	100
		GGY - HC - 4026:	Population and Settlement Geography	4+2	100
		GGY - HC - 4036:	Remote Sensing , GIS and GPS	4+2	100
	Skill Enhancement Course (Any one)	GGY - SE - 4014:	Advanced Statistical Techniques for Spatial Analysis	2+2	100
		GGY - SE - 4024:	Surveying Techniques	2+2	100
	Generic Elective Paper (Any one)*	GGY - HG - 4016:	Geography of India with Reference to N.E. India	4+2=6	100
		GGY - HG - 4026:	Population and Settlement Geography	4+2=6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External (80)		Internal (20)			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	4th	HonoursCore	GGY - HC - 4016:	Environmental Geography and Disaster Management	100	60	20	10	6	4	4+2=6
			GGY - HC - 4026:	Population and Settlement Geography	100			10	6	4	4+2=6
			GGY - HC - 4036:	Remote Sensing , GIS and GPS	100			10	6	4	4+2=6
		Skill Enhancement Course (Any one)	GGY - SE - 4014:	Advanced Statistical Techniques for Spatial Analysis	100	40	40	10	6	4	2+2=4
			GGY - SE - 4024:	Surveying Techniques	100	40	40	10	6	4	2+2=4
		Generic Elective (Any one)	GGY - HG - 4016:	Geography of India with Reference to N.E. India	100	60	20	10	6	4	4+2=6
			GGY - HG - 4026:	Population and Settlement Geography	100	60	20	10	6	4	4+2=6

CBCS-based U.G. Course in Geography, 2019
Syllabus of Core Course
Name: Environmental Geography and Disaster Management
Paper Code: GGY-HC-4016
Total Credit: 6 (4+2)
Total Marks: 100

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

Course objectives

● This is a core 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 a spatial perspective.

Course outcomes

● This paper will be useful for students in developing ideas on environmental issues including disasters that geographers usually address.
● This paper will 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 DisasterManagement Act 2005. **(6 Classes)**

Part II: Practical

Credit: 2 (20 Marks)
(20 classes of two 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 Brahmaputra river from any selected stretch in three different time periods and preparation of map therefrom. (1 exercise)
   (Goalpara,Palashbari, 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) based distribution. (1 exercise)

3. Preparation of a map of a nearby wetland and identify the changes in dimension, water level and encroachment it faced during the last one decade. Present your 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 exercises)
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 by taking 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. Cunninghum W. P. and Cunninghum M. A., 2004: Principals of EnvironmentalScience: 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.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Core Course

Course Name: Population and Settlement Geography

Paper Code: GGY-HC-4026

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 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: nature and scope; Its relation with demography. **(3 Classes)**

2. Sources, characteristics and problems of population data; Perspectives on Census of India publications – Primary Census Abstract, District Census Hand-Book, Sample Registration System, etc. **(4 Classes)**

3. Distribution and density of population: Factors influencing population distribution and density; global pattern of population distribution; population density regions in the world. **(4 Classes)**

4. Population Growth: Trend of global population growth; components of population growth–fertility, mortality and migration; factors influencing fertility and mortality; 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; Contemporary population issues – population ageing, declining sex ratio, pandemics. **(4 Classes)**

Unit II: Settlement Geography (20 Marks) 14 Classes

1. Defining the field of settlement of geography: Nature and scope. **(2 Classes)**

2. Rural and urban settlements: Factors influencing distribution pattern of settlements; Types of rural settlements; Characteristics of rural and urban settlements. **(4 Classes)**

3. Morphology of rural and urban settlements; Burgess theory of internal structure of a town. **(4 Classes)**

4. Concept of settlement hierarchy, primate city 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/India through line graph; Calculation and graphical representation of trend of decadal and annual growth rates of population in Assam/N.E. India/India.
(3 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. Calculation of distribution pattern of settlements in an area using Nearest Neighbour Analysis.

(1 Exercise)

5. Map showing spatial variation in social/religious/rural-urban composition of population in Assam/N.E. India using pie-graph.

(1 Exercise)

6. Choropleth map showing spatial pattern of level of urbanization in Assam/N.E. India.

(1 Exercise)

7. Map showing distribution of towns and their varied population size with spheres in Assam/N.E. India. (1 Exercise)

8. Flow cartogram showing direction and volume of migration into Assam/N.E. India from different parts of 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 andProspects,* 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.

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CBCS-based U.G. Course in Geography, 2019
Syllabus of Honours Core Course
Course Name: Remote Sensing, GIS and GPS
Paper Code: GGY-HC-4036
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60; Practical: 20; 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: 4 (60 Marks)

(40 classes of 1 hour duration each)

Unit 1: Remote Sensing (30 Marks)

1. Remote Sensing: Definition and History of Development. (3 classes)
2. Principles of Remote Sensing System: Energy sources, EMR and its interaction with Atmosphere and Earth Features; Platform, Sensor and Resolutions; Aerial and Satellite Remote Sensing; Fundamentals of Photogrammetry. (8 classes)
3. Remote Sensing data products, sources and characteristics; Elements of Image Interpretation (Visual & Digital); Digital Image Processing: Image Enhancement and Classification (Supervised and Un-supervised). (6classes)
4. Application of Remote Sensing: Land, Vegetation and Water (3 classes)

Unit 2: GIS (20 Marks)

1. Geographical Information System (GIS): Definition, Development, Components, and Functions; Open source GIS. (4 classes)

2. GIS Data Types &Structures: Spatial and Non-Spatial Data; Raster and Vector Data Structure, Database Management System (DBMS). (4 classes)
3. Data Layer Extraction and Spatial Analysis: Buffer, proximity and overlay analysis. (3 Classes)

4. Application of GIS in geographical studies (Land Suitability analysis, Network analysis, Flood damage estimation) (3 classes)

Unit 3: GPS (10 Marks)

1. Global Positioning System (GPS): Types, basicprinciples and functions; Different Navigational Systems. (3 classes)
2. Application of GPS in surveying and mapping. (3 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. Visual Interpretation of Aerial photograph and Satellite Imagery and preparation of thematic maps based on appropriate classification scheme. 2 assignments

2. Analysis of aerial photographs and satellite image: Determination of photo scale and object height from aerial photo (Using Sterescope); Digital classification of satellite image: supervised and unsupervised. 3 assignments

3. Geo-referencing and Data layer creation: Map scanning, geometric correction, digitization of different layers using point, line and polygon, attribute data input and their thematic representation, Buffer creation, Overlay analysis. 3 Assignments

4. GPS data collection, plotting and mapping of various features within college campus.
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 (4 Marks)

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

11. Burrough, P.A. and McDonnel, R.A.,1998: *Principles of Geographical InformationSystems*, Oxford University Press.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Skill Enhancement Course

Course Name: **Advanced Statistical Techniques for Spatial Analysis**

Paper Code: GGY-SE-4014

Total Credit: 4 (2+2)

Total Marks: 100

(Theory: 50, Practical: 50)

Course objectives

This skill enhancement course on Advanced Spatial Statistical Techniques basically deals with understanding the application of different statistical measures for analysing data relating to various geographical phenomena. Besides, this course provides basic knowledge about handling various geographical data (spatial and non-spatial) for understanding spatial and temporal patterns by applying different statistical measures like variability/disparity index, correlation and regression analysis, etc.

Course outcomes

- It provides general understanding of geographical data and application of various statistical measures for their meaningful analysis.
- Acquiring basic knowledge about probability and normal distributions and their applications for sample data collection and analysis.
- Understanding the patterns and processes associated with various geographical phenomena through application of different statistical techniques.

Part I: Theory

Credit: 2 (50 Marks)

(30 classes of 1 hour duration each)

1. Statistics and Geography: Role of statistics in geographical studies; Nature of geographical data and selection of statistical techniques for spatial analysis (Basic understanding) (3 Classes)

2. Application of the measures of central tendency (mean, median, mode and weighted mean) and dispersion (standard deviation, coefficient of variation, coefficient of skewness and standard distance) in geographical data analysis and spatial distribution pattern analysis. (6 Classes)

3. Application of probability distributions (Normal, poisson and binomial) in understanding various geographical phenomena; Characteristics/Properties of normal distribution. (4 Classes)

4. Meaning and importance of sampling in geographical studies;Types of sampling (probability and non-probability sampling) and their relative merits and demerits; Concept of large and small samples. (6 Classes)

5. Correlation and regression analysis in geography: Rank correlation and product-moment correlation coefficient; Linear regression and regression residuals; Concept of multiple correlation and regression. (6 Classes)

6. Introduction to the concept and application of Location quotient; Disparity or Differential index; Nearest Neighbour Analysis; Data standardization through ranking method for computation of composite score. (5 Classes)

Part II: Practical

Credit: 2 (50 Marks)
(20 classes of 2 hour duration each)

Unit I: Practical Works (40 Marks)

(To attempt 4 questions carrying 8 marks each)

1. Setting of hypothetical data of a geographical phenomenon for normal, positively skewed and negatively skewed distributions, calculation of mean, median, mode and coefficient of skewness, and representation of the positions of mean, median and mode in the respective frequency distribution curves. (3 Exercises)

2. Graphical representation of median and mode for a given set of grouped data of a geographical attribute. (2 Exercises)

3. Determination of the spatial mean centre(s) of population/urban population in Assam/N.E. India. (1 Exercise)

4. Computation of correlation coefficient (both rank and product-moment), fitting of regression line of Y on X and preparation of regression residual map for a set of meaningful bi-variate geographical data of Assam/N.E. India/India. (3 Exercises)

5. Analysis of appropriate geographical data for computation/representation of LQ, gender disparity in literacy or work participation, and composite scores of socio-economic development (ranking technique). (3 Exercises)

Note: Any Statistical Software Package (SPSS, MS Excel, R, etc.) may also be used for practice.

Unit II: Practical Note-Book and Viva-voce (10 Marks)

1. Evaluation of Practical Note-Book (5 Marks)

2. Viva-voce (5Marks)

Reading List:

1. Bart James E and GerldM.Barber, 1996: Elementary Statistics for Geographers, TheGuieford Press, London.

2. Eldon, D., 1983: Statistics in Geography: A Practical Approach, Blackwell, London.

3. Cressie, N.A.C., 1991: Statistics for Spatial Analysis, Wiley, New York.

4. Gregory, S., 1978: Statistical Methods and the Geographer (4th Edition), Longman, London.
5. Haining, R.P., 1990: Spatial Data Analysis in the Social and Environmental Science, Cambridge University Press, Cambridge.
6. Mc Grew, Jr. And Cahrles, B. M., 1993: An Introduction to Statistical Problem Solving in Geography, W.C. Brocan Publishers, New Jersey.
7. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
8. S.K., 1998: Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi.
9. Wei, W.S.,1990: Time Series Analysis: Variate and Multivariate Methods , Addison Wesley Publishing.
10. Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, McGrawhill, New York.
11. Mahmood, A., 2002: *Statistical Methods in Geographical Studies*, Rajesh Publications, New Delhi.
12. Sarkar, A., 2013: *Quantitative Geography: Techniques and Presentations*, Orient Black Swan, New Delhi.

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CBCS-based U.G. 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: 50, Practical: 50)

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 (50 Marks)
(20 classes of 1 hour duration each)

1. Surveying: Its meaning, types and significance in geography. (2 Classes)

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 (50 Marks)
(20 classes of 2 hour duration each)

Unit I: Practical Works (40 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 (10 Marks)

1. Evaluation of Practical Note-Book (5 Marks)

2. Viva-voce (5 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).

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

Syllabus of Generic Elective Course

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

Paper Code: GGY-HG-4016

Total Credit: 6 (4+2)

Total Marks: 100

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

Course objectives

- This is an elective paper which intends to introduce students 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. **(3classes)**

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. **(5classes)**

5. Agriculture: Environmental, Technological and Institutional Factors affecting Indian Agriculture; Distribution and Production of Rice, Wheat and Tea; Agro Climatic Zones; Food Security. **(5classes)**

6. Distribution and characteristics/potential of Natural Resources: Soil, Vegetation, Water, Mineral Resources (Coal, Petroleum and Iron ore). **(5classes)**

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 (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 Intenational 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.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Core Course

Course Name: Population and Settlement Geography

Paper Code: GGY-HG-4026

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)

5. Evaluation of Practical Note-Book (2 Marks)
6. 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 andProspects,* 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.

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Syllabus for
BA/B.Sc.(Honours) 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

Department of Geography
GAUHATI UNIVERSITY
Guwahati-781014

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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: Honours Course (5th Semester)

Semester V Marks 400 Credit 24	Honours Core	GGY - HC - 5016	Social and Political Geography	4+2=6	100
		GGY - HC - 5026	Field Techniques in Geography	4+2=6	100
	Discipline Specific Elective (Group I) (Any one)	GGY - HE - 5016:	Geography of Transportation	4+2=6	100
		GGY - HE - 5026:	Regional Development and Planning	4+2=6	100
	Discipline Specific Elective (Group II) (Any one)	GGY - HE - 5036:	Urban Geography	4+2=6	100
		GGY - HE - 5046:	Agricultural Geography	4+2=6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External (80)		Internal (20)			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	5th	HonoursCore	GGY - HC - 5016	Social and Political Geography	100	60	20	10	6	4	4+2=6
			GGY - HC - 5026	Field Techniques in Geography	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective (Group I) (Any one)	GGY - HE - 5016:	Geography of Transportation	100	60	20	10	6	4	4+2=6
			GGY - HE - 5026:	Regional Development and Planning	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective (Group II) (Any one)	GGY - HE - 5036:	Urban Geography	100	60	20	10	6	4	4+2=6
			GGY - HE - 5046:	Agricultural Geography	100	60	20	10	6	4	4+2=6

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

Syllabus of Honours Core Course

Course Name: Social and Political Geography

Paper Code: GGY-HC-5016

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 outcome:

- 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) 20 Classes

1. Social Geography: Meaning and scope; its approaches of study; and contemporary trend of its development. (4 Classes)
2. Concept and types of social space and social groups. (4 Classes)
3. Social Well-being: Concept and Component: Housing, Health and Education; Concept ofHuman development and its measurements. (4 Classes)
4. Contribution of race, religion, language and ethnicity in promoting diversity in India. (4 Classes)
5. Social Geographies of inclusion and exclusion: Caste system, slums, gated communities, communal conflicts and crime; Gender identity. (4 Classes)

Unit 2: Political Geography (30 Marks) 20 Classes

1.Political Geography: Nature, scope and recent trends; 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.(5 Classes)

4. Concept of Geopolitics, Heartland and Rimland; Mackinder'sHeartland Theory.

(4 Classes)

5.Concept of colonialism, neo colonialism and lebensraum. (4 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. Mapping the spatial patterns of human development in India and Assam using HDI.**(2 Exercises)**

2. Construction of Ternary Diagram representing social composition of population in India/North East India. **(1 Exercise)**

3. Level of Social well-being with the help of composite Z-score in India /North-East India. **(1 Exercise)**

4. Sex disparity in literacy in India/North-East Indiausing Sopher's Disparity Index. (**1 Exercise)**

5.Computation of Shape Index for selected states of India and countries. (**2 Exercises)**

6. Construction of a map of India/North-East India highlighting the major inter-state boundary conflict zones. **(2 Exercises)**

7**.** Reorganization of the 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 (2marks)

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.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Honours Core Course

Course Name: Field Techniques in Geography

Paper Code: GGY-HC-5026

Total Credit: 6 (4+2)

Total Marks 100

(Theory: 60, Practical: 20 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 helpsthe students to learn the various techniques of data collection from the field andto 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: 4 (60 Marks)

(40 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. (4 classes)

2. Concept of Case Study and Its identification in the varying geographical contexts (Physical/Human/Rural/Urban/Environmental). (4 classes)

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, Equipment/Measurement-based survey, etc; Collection of Human geographic data: Questionnaire survey, Participant observation, PRA, Focus group interview/discussion, etc. (14 classes)

4. Surveying: Concept of ground surveying and mapping;Conduct of traverse surveying with Prismatic Compass; Profile levelling and contouring with Dumpy Level; Pont distribution survey with GPS; Field mapping of Village, River bank, Wetland, Landslides, Market, etc through Transect, Quadrant and sketch map. (14 classes)

5. Preparation of Field Study Report and its broad design: Basis of selection of the theme of field study; Objectives, Methods of data collection, Location/Situation of the study area, Data Analysis and mapping, Interpretation/Findings. (4 classes)

Part II: Field Book

Credit: 2 (20 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. The evaluation shall be based on average of marks given by the external examiner and internal 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.
(2 Assignments)

2. Preparation of two field survey questionnaire/schedule (within 2 pages 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 and contouring in College campus and any nearby area with Dumpy Level, and plotting of collected data in the forms of longitudinal profile and contour map. (2 Assignments)

5. Collection of point data from an area with handheld GPS and preparation of a GPS data table and distribution map with down-loaded data. (1 Assignment)

6. Preparation of field map of a village, urban locality/market, river bank/wetland and its adjoining area or their any section through Transect, Quadrant and sketch map along with a spot photograph of the same. (3 Assignments)

Unit II: Viva-voce (5 Marks)

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 Publs. Co., New Delhi.

5. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. 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.

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CBCS-basedU.G. Course in Geography, 2019
Syllabus of Discipline Specific Elective Course

Course Name: Geography of Transportation

Paper Code: GGY-HE-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 introducethe students to the significance of transport studies in geography.
- The students will be exposed to the ideasof various facets of transport network, modes of transportation and flow analysis.

Course Outcome:

- The students will be able to understand and analyse the principal issues confronting the transportation systems from geographical perspectives.
- The students will get an insight into various transportation systemsfrom global and India perspectives.

Part I: Theory

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

1. Nature, scope and development of Transport Geography. (2 Classes)
2. Factors associated with development of transport system: Physical, Economic, Social and Cultural, and Institutional. (5 Classes)
3. Evolution of transport network; Characteristics and relative significance of different modes of Transport (Roads, Railways, Airways and Waterways). (6 Classes)
4. Transport Network Connectivity and Accessibility: Measures/Indices of connectivity and accessibility; models of spatial interaction and flow; Concept of Taaffee, Morril and Gould's Transport Model. (9 Classes)
5. Transport planning for Regional Development: Concept of coordinated transport planning and development; Transport development and resource mobilization; Concept of urban transport network planning; Management of urban traffic Congestion. (9 Classes)
6. Transport Systems in India: Development of Railways, Roadways, Airways and Waterways, and their coordination; National Transport Policy and Planning; Development of National Highways; Rapid transit systems in mega cities of India; Role of transport development in N.E. India for promotion of Act East Policy and border trades. (9 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. Computation of road network connectivity patterns in Assam/N.E. India using graph-theoretic measures (Alpha, Beta andGamma indices).(3 assignments)
2. Computation of road transport accessibility in Assam/N.E. India using Connectivity Matrix and Konig Number. (2 assignments)
3. Computation of road transport accessibility of selected towns of Assam/N.E. India using Detour Index. (1 assignment)
4. Preparation of Traffic flow cartogram of Assam/N.E. India showing movement of commodities/Passengers/Buses from different places. (2 assignments)
5. Urban population potential mapping based on major towns of Assam/N.E. India. (1 assignment)
6. Computation and mapping of spatial patterns of road density in N.E. India. (1assignment)
7. Mapping of spatial patterns of transport development level in N.E. India using a simple composite index (Ranking 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. Bamford, C.G. and Robinson, H. (1978), Geography of Transport, Macdonald and Evans, London.
2. Bhaduri S. (1992), Transport and Regional Development, Concept Publishing Company, New Delhi.
3. Eliot Hurst, M.E. (1972), A Geography of Economic Behavior: An Introduction, Duxbury Press, California.

4. Hammond, R. and McCullagh, P.S. (1989), Quantitative Techniques in Geography: An Introduction, Clarendon Press, Oxford.
5. Hoyle, Band and Knowles, R. (2000), Modern Transport Geography, John Wiley and Sons, New York.
6.Hoyle, B.S. (1973) Transport and Development, McMillan, London
7. Husain, M. and Zaidi, S.S.H. (1996), Environmental Management in India, Concept Publications Pvt. Ltd. New Delhi.
8. Majid Husain (1994): Transport Geography, Anmol Publication Pvt. Ltd, New Delhi.
9. Raza, M. and Aggarwal, Y.P. (1985), Transport Geography of India, Concept Publishing Company, New Delhi.
10. Saxena, H.M. (2010), Transport Geography, Rawat Publications, New Delhi.
11.Taaffe, E.J. and Gauthier, H.L. (1973) Geography of Transportation, Prentice Hall Englewood Cliff, New Jersey.
12. Vaidya, B.C. (1998), Reading's in Transport Geography, Devika Publications, Delhi.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Discipline Specific Elective Course

Course Name: Regional Development and Planning

Paper Code: GGY-HE–5026

Total Credit: 6 (4+2)

Total Marks: 100

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

Course objectives:

- This paper intends to introduce students to the rationale underlying the relevance of balanced regional development and spatial inequalities from geographical perspective.
- It seeks to develop new insights among students on the issue of development and associated regional disparities in development.

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 higher studies or research in future.
- The paper will be very 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)

Unit I: Regional Planning (30 marks) (20 Classes)

1. Region: Concept, types and delineation techniques of a region. (4 Classes)
2. Regional planning:Evolution and types; Objectives and principles of Regional Planning. (5 Classes)
3. Regional Planning in India: Macro, meso and micro level planning; Local level planning and Panchayati Raj (GPDP); Participatory approach in planning; NITI Aayog. (6 Classes)
4. Planning regions of India with special reference to North-East India. (5 Classes)

Unit-II: Regional Development (30 marks) (20 Classes)

5. Concept of Development: Growth versus development; Concept of sustainable development and balanced development. (4 Classes)
6. Regional Development theories and models: Concept and basic ideas of Growth Pole Model of Perroux; Cumulative Causation Theory ofMyrdalandStages of Economic Growth model of Rostow.
   (6 Classes)
7. Human development: Meaning and concept of Human Development Index; Concept of Happiness Index. (4 Classes)
8. Disparity of Regional Development in India:Development indicators; Measuringlevel of development; Pattern of regional development in India with special reference to North-East India; Role of NEC and DoNER Ministry towards development of the NE Region.
   (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. Delineation of agriculturalproductivityregions in Assam/NE India by using weighted index number and Bhatia's method. (2 Assignments)
2. Delineation of influence zones of selected urban centres of Assam/ NE India by using Reilly's Breaking Point formula. (2 Assignments)
3. Preparation of land use maps of any suitable area for two different points of timefor identifying the changes in settlement, agriculture land, forest cover, water bodies, etc. during the period; and representation of data generated from there in a graph. (2 Assignments)
4. Preparation of a choropleth map to show regional disparity in development in India andN. E. Indiabased on selected indicators using Ranking Method and Composite Z-Score method. (2 Assignments)
5. Preparation of flow cartogram to show volume of inter-state movement of different commodities in India/NE India.(2 Assignments)

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. Bhargava, G. 2001. *Development of India's Urban, Rural, and Regional Planning in 21st Century: Policy Perspective*, Gyan Publishing House.
2. Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
3. Chand, M., Puri, V.K. 2000. *Regional Planning In India*, Allied Publishers Ltd.
4. Chandana, R.C. 2016. *Regional Planning and Development*, 6th ed, Kalyani Publishers.
5. ClavalP.l, 1998: *An Introduction to Regional Geography,* Blackwell Publishers, Oxford and Massachusetts.
6. Friedmann J. and Alonso W. (1975): *Regional Policy - Readings in Theory and Applications,* MIT Press, Massachusetts.
7. Glasson, J. 2017. *Contemporary Issues in Regional Planning*, Routledge.
8. Gore C. G., 1984: *Regions in Question: Space, Development Theory and Regional Policy*, Methuen, London.
9. Gore C. G., Köhler G., Reich U-P. andZiesemer T., 1996*: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention*, MetropolisVerlag, Marburg.
10. Haynes J., 2008: *Development Studies,* Polity Short Introduction Series.
11. Johnson E. A. J., 1970: *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.
12. Misra, R.P. 1992. *Regional Planning: Concepts, Techniques, Policies and Case Studies,* Concept Publishing.
13. Peet R., 1999: *Theories of Development*, TheGuilford Press, New York.
14. Ray, J. 2001. *Introduction to Development & Regional Planning*, Orient Blackswan.
15. UNDP 2001-04: *Human Development Report*, Oxford University Press.
16. World Bank 2001-05: *World Development Report,* Oxford University Press, New
17. https://sustainabledevelopment.un.org/partnership/?p=2212.

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CBCS-basedU.G. Course in Geography, 2019
Syllabus of Discipline Specific Elective Course

Course Name: Urban Geography
Paper Code: GGY-HE-5036

Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives

- This paper introduces the students to the field of urban geography and its major aspects.
- It seeks to develop new insights among students on the relevance of an urban geography and associated problems in a rapidly urbanizing world.

Course outcomes

- The paper will be useful for students in developing ideas on how geographical factors organize urban spaces and how geographers seek to address various urban problems and issues.
- It will help build skills among students seeking advanced studies on urban development and planning.
- The paper will be very 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. Urban Geography: Nature and scope; approaches and trends in urban geography. **(4 classes)**
2. Origin and growth of towns in global and national contexts; Types and characteristics of towns; Functional classification of towns; Schemes of city classification (J.M. Houston's, G. Taylor's and L. Mumford schemes). **(8 classes)**
3. Patterns of Urbanisation in developed and developing countries; Components of urbanization and urban population growth. **(4 classes)**
4. Organization of urban space: Urban morphology and land use structure; Theories on the internal structure of town: the Sector Theory of Homer and Hoyt, and the Multiple Nuclei Theory of Harris and Ullman **(4 classes)**

5. Concept of city-region, urban agglomeration, urban sprawl, umland and periphery, rural-urban dichotomy and continuum, urban fringe, satellite town, new town, smart city. **(4 classes)**
6. Urban Systems: Concept of urban system and hierarchy; Christaller's Central Place Theory; the rank-size distribution of cities; concept of primate city. **(6 classes)**
7. Urban issues and problems: Housing, slums, civic amenities (transportation and drinking water), traffic congestion, pollution (air, noise, water), and crime. **(5 classes)**
8. Urbanization and urban development planning in India: Trend and regional patterns of urbanization; national urban development policies and programmes; emerging urban issues of selected cities (Delhi NCR, Mumbai,Guwahati). **(5 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. Plotting of million cities of India by using proportionate sphere method. **(1 Exercise)**
2. Map showing distribution of class I and II urban centres in Assam/NE India by using proportionate sphere method. **(1 Exercise)**
3. Determination of spatial mean centres of urban settlements using weighted (Population as weight) centrographic measure in Assam and NE India. **(2 Exercises)**
4. Calculation of distribution pattern of urban settlements in a District/State of N.E. India using Nearest Neighbour Analysis. **(1 Exercise)**
5. Choropleth map showing spatial pattern of level of urbanization in Assam and N.E. India. **(2 Exercises)**
6. Determination of rank-size relationship of urban centres in Assam/N.E. India/India. **(1 Exercise)**
7. Urban population potential mapping based on selected urban centres of Assam/N.E. India. **(1 Exercise)**
8. Delineation of urban influence zones of selected urban centres of Assam/N.E. India using Reilly's breaking point formula. **(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. Bala, R. (1986): Urbanisation in India, Rawat, Jaipur.
2. Bansal, S.C. (2010): Urban Geography, MeenakshiPrakashan, Meerut.
3. Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
4. Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures,TechnologicalMobilities and the Urban Condition*, Routledge.
5. Hall T., 2006: *Urban Geography*, Taylor and Francis.
6. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
7. Knox P. L. and McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall New York.
8. Knox P. L. and Pinch S., 2006: *Urban Social Geography: An Introduction*, Prentice-Hall.
9. Kundu, A. (1992): *Urban Development and Urban Research in India*, Khanna Publication, New Delhi.
10. Nangia, S. (1976): *Delhi Metropolitan Region: A Study in Settlement Geography*, Rajesh Publication, New Delhi.
11. Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
12. Ramachandran R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
13. Sassen S., 2001: *The Global City: New York, London and Tokyo*, Princeton University Press.
14. Siddhartha K and Mukherjee S, (1996): *Cities, Urbanisation and Urban Systems*, Transworld media and communication, New Delhi
15. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
16. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks andresilience in Asian megacities Advances in Geographical and Environmental Studies, Springer.

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CBCS-based U.G. Course in Geography, 2019
Syllabus of Discipline-Specific Elective Course
Course Name: Agricultural Geography
Paper Code: GGY-HE-5046
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:

- As a discipline-specific elective paper it intends to introduce the students to the basic concepts of agriculture and agricultural geography.
- It seeks to develop understanding among students about the significance of Agricultural Geography.
- To understand how different types of agriculture have developed in different areas and how they are similar to or different from one another.

Course Outcome:

- This paper will be useful for students in developing ideas about agricultural practices and their distribution and characteristics.
- This paper will also be useful tothe students in understanding the world agricultural systems.
- This paper will help develop understanding of location of agricultural activities and associated contemporary problems and challenges.

Part I: Theory
Credit: 4 (60 Marks)

(40 Classes of 1 hour each)

1. Agricultural Geography: Meaning and Scope, Significance; Its approaches of study. (3 classes)
2. Factorsinfluencing agriculture: Physical, Socio-economic, Infra-structural and Institutional. (4 classes)
3. Agricultural Systems and Types: Global Agricultural Systems; Agricultural types: Intensive and Extensive, Subsistence and Commercial, Plantation Farming, Mixed Farming, Horticulture and Market Gardening. (8 classes)
4. Von Thunen'sModel of Agricultural Location; Concept of Land Rent and Market forces. (4 classes)
5. Concept of cropping patterns: Crop Combination (Nelson's Method), Crop concentration, Intensity of cropping and Crop rotation. (5 classes)
6. Agricultural Modernization and Development: Concept of agricultural modernization; Inputs of agricultural modernization (mechanization, Irrigation, HYV seeds, fertilizers etc.); Concept of crop productivity and agricultural development.(8 classes)

7. Factors, distribution and production patterns of rice, wheat and sugarcane in the world. (4 classes)
8. India's agriculture: Major characteristics and problems; Green revolution; agro-climatic regions. (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 production of major food grains (rice, wheat, maize etc.) in India/ selected States using moving average method. (1 Exercise)
2. Preparation of the crop- combination Map of Assam/ North East India based on Nelson's method. (1 Exercise)
3. Agricultural productivity pattern in Brahmaputra Valley/Assam/ N E India based on Kendall's Ranking Method. (1 Exercise)
4. Mapping of spatial pattern of Intensity of Cropping in Assam/ North East India Exercises) (1 Exercise)
5. Spatial variation in land use pattern in Brahmaputra valley/ North East India with Pie diagram.(1Exercises)
6. Spatial pattern of crop concentration in North East India/ Assam using Location Quotient Method. (1 Exercise)
7. Spatial pattern of level of agricultural development in Assam/ N E India using Composite Z-Score. (2Exercises)
8. Correlation and regression analysis between irrigation and cropping intensity in Assam/N.E. India. (2 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:

1. Basu, D.N., and Guha, G.S. (1996). Agro-Climatic Regional Planning in India, Vol.I& II. New Delhi, India: Concept Publication.
2. Das M.M (2018): PeasantAgriculture in Assam, EBH (India) Publishers, Guwahati.
3. De, N.K., Jana, N.C. 1997: The Land: Multifaceted Appraisal and Management, Sribhumi Publishing.

6. Hussain, M. (1996). Systematic Agricultural Geography, Jaipur, India: Rawat Publications
7. Hussain, M. 1978. Agricultural Geography, Rawat Publication, Jaipur Knowles.
8. R and Wareing, J.1990. Economic and Social Geography, Made Simple Books,
9. RupaMonkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.
10. Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
11. Shafi, M., 2006: Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi.
12. Singh, J., and Dhillon, S.S., 1984: Agricultural Geography, Tata McGraw Hill, New Delhi.

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Syllabus for
BA/B.Sc.(Honours) 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

Department of Geography
GAUHATI UNIVERSITY
Guwahati-781014

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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: Honours Course (6thSemester)

Semester VI Marks 400 Credit 24	Honours Core	GGY - HC - 6016	Geographical Thought	4+2=6	100
		GGY - HC - 6026	Research Methods in Geography and Project Work	4+2=6	100
	Discipline Specific Elective (Group I) (Any one)	GGY - HE - 6016	Geography of Health	4+2=6	100
		GGY - HE - 6026:	Hydrology	4+2=6	100
	Discipline Specific Elective (Group II) (Any one)	GGY - HE - 6036:	Geography of Tourism	4=2=6	100
		GGY - HE - 6046:	Geography of Resources and Development	4+2=6	100

Subject	Semester	Paper type	Paper Code	Paper name	Total Marks	Marks Distribution					Paper Credit
						External (80)		Internal (20)			
						Theory	Practical	Sessional	Practical /Assignments	Attendance	
Geography	6th	Honours Core	GGY - HC - 6016	Geographical Thought	100	60	20	10	6	4	4+2=6
			GGY - HC - 6026	Research Methods in Geography and Project Work	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective (Group I) (Any one)	GGY - HE - 6016:	Geography of Health	100	60	20	10	6	4	4+2=6
			GGY - HE - 6026:	Hydrology	100	60	20	10	6	4	4+2=6
		Discipline Specific Elective (Group II) (Any one)	GGY - HE - 6036:	Geography of Tourism	100	60	20	10	6	4	4+2=6
			GGY - HE - 6046:	Geography of Resources and Development	100	60	20	10	6	4	4+2=6

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

Syllabus of Core Course

Course Name: Geographical Thought

Paper Code: GGY-HC-6016

Total Credit: 6 (4+2)

Total Marks: 100

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

Course objectives:

- This course introduces the students to the theoretical development of geography over time.
- This course presents contemporary and post-modern perspectives, along with the models that act as a guiding force of the discipline to understand various geographical phenomena in proper perspectives.

Course outcomes:

- This course develops a comprehensive understanding of the discipline;
- This course helps the students to apply the historic and contemporary perspective to explain and approach the real world geographic problems.

Part 1: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. Early development of Geography: Ancient,dark age, medieval, and age of exploration and discoveries. **(8 classes)**
2. Foundation of modern geography: Contribution of the German, French, British and American geographers. **(6 classes)**
3. Evolution of geographical thought: Determinism, possibilism, neo-determinism, human ecology, cultural landscape and areal differentiation. **(8 classes)**
4. Recent trends in geography: Quantitative revolution and its impact, logical positivism, locational school of thought, behaviouralism, humanistic geographyand post-modernism. **(10 classes)**
5. Geographical debates: Regional and systematic; ideographic and nomothetic. **(4 classes)**
6. Models in geography:Meaning, types and significance; basic concepts of Gravity Model, Spatial Diffusion Model and Distance Decay Model. **(4 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. Mapping of routes of exploration and discoveries (Marco Polo, Christopher Columbus, Vasco-da gama, and James Cook**)** **(1 Exercise)**

2. Intensity of spatial interactionof Guwahati city with neighbouring urban centres. (**1 Exercise**)

3. Mapping of population potential surfaces in Assam using the gravitymodel. **(1 Exercise)**

4. Demarcation of urban influence zone by using Reily's breaking point formula. **(1 Exercise)**

5. Population Density gradient analysis of Guwahati or any other city. **(1 Exercise)**

6. Trend of development of paradigms in geography (from Environmental Determinism to Post Modernism) through time-scale graph indicating advocates, tentative time of emergence and overriding theme. **(1 Exercise)**

7. Preparation of a world map highlighting the major developments of geography (Greek, Arab, France, Germany, Russia, UK and USA) indicating the contribution, name of the contributor and year of contribution. **(1 Exercise)**

8. Greek and Arabian contributions to the development of Geography in different ages (Name of contributor and name of contribution at different points of time) through time-scale graph.

(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. Arentsen M., Stam R. and Thuijis R., 2000: Post-modern Approaches to Space, ebook.
2. Bhat, L.S. (2009) Geography in India (Selected Themes). Pearson
3. Bonnett A., 2008: What is Geography? Sage.
4. Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice– Hall India.
5. Hartshone R., 1959: Perspectives of Nature of Geography, Rand MacNally and Co.
6. Holt-Jensen A., 2011: Geography: History and Its Concepts: A Students Guide, SAGE.
7. Hussain, M., 1989: Evolution of Geographic Thought, Rawat Publications, Jaipur.
8. Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
9. Johnston R. J., 1997: Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London.
10. Kapur A., 2001: Indian Geography Voice of Concern, Concept Publications.
11. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford.
12. Soja, Edward 1989. Post-modern Geographies, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

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CBCS-basedU.G. Course in Geography, 2019

Syllabus of Honours Core Course

Course Name: Research Methods in Geography and Project Work

Paper Code: GGY-HC-6026

Total Credit: 6 (4+2)

Total Marks: 100

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

Course Objectives:

The paper on Research Methods will enable the students:

- To understand how to approach a research problem and to formulate research objectives and research questions in proper perspective. In addition, knowledge of formulation of hypothesis and testing, framing of questionnaires, techniques of collection of both qualitative and quantitative data and their analysis.
- To develop understanding of the basics and utility of review of literature and preparation of research report.

Course Outcomes:

- This course will help the students to proceed with a research problem and the steps she/he should adopt and the tools and craft to be employed while doing quality research.

Part I: Theory

Credit: 4 (60 Marks)

(40 Classes of 1 hour each)

1. Meaning and significance of research; types of research; Basics of research methodology; Review of literature and its need; Ethics of research. (6 Classes)

2. Geographic Research: Meaning and Characteristics; Formulation of research problem. (4 Classes)

3. Research Design: Statement of the problem, Review of research works, Objectives, Research questions, Hypotheses, Database and methodology, Significance, Organization of the Work and Referencing. (10 Classes)

4. Data Collection: Types and Sources of Data; Methods of primary data collection (both qualitative and quantitative, and physical and human geographic data); Concept of sample survey; Pilot survey; Data processing (Manual and computerised). (10 Classes)

5. Statistical Analysis of Data: Qualitative data analysis; Quantitative data analysis; Data representation (Manual and computerised). (5 Classes)

6. Structure of a Research Report: Preliminaries; Text; Tables, Figures and Appendices; Citations, References and Bibliography; Research/Project Report Writing; Executive Summary.

(5 Classes)

Part II: Project Report

Credit: 2 (20 Marks)

(21 classes of two hour duration each)

Project Report Preparation and Evaluation (20 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: 30-40 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 (Kutcha 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 marks distribution of the Project Report in the final semester examination is as follows:
   (i) Total marks: 20
   (ii) Evaluation of Content: 15 (average between external examiner and internal teacher guide)
   (iii) Viva-voce: 5 (exclusively 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. Kothari, C. R., 1993: *Research Methodology: Methods and Techniques*, 2nd ed., Wiley Eastern Ltd., New Delhi.
5. Misra, H.N. and Singh, V.P., 1998: *Research Methodology in Geography*, Concept Publishing Company, New Delhi.
6. Misra, R.P. (2002) Research Methodology, Concept Publications, New Delhi.
7. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
8. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi

9. 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.
10. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
11. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.
12. Wolcott, H. 1995. The Art of Fieldwork.Alta Mira Press, Walnut Creek, CA.
13. Yadav, H. (2013) ShodhPravidhiEvamMatratamakBhugol, Raja Publications, Delhi.

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

Course Name: Geography of Health

Paper Code: GGY-HE–6016
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; dualism between medical geography and geography of health. **(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); Diffusion of diseases and their causes in varied biotic, physical and cultural environments. **(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 (Malaria, Japanese encephalitis, tuberculosis, hepatitis, AIDS and COVID-19) and their broad global distribution.

   (8 classes)

5. Heathcare systems: Meaning and components; Universal government-funded health system; Role of WHO and UNICEF in global health care; SDG3 for good health and Well-being; Healthcare services in India: family welfare, immunization, National Health Mission and itsprogrammes, health for all programmes, challenges to health care system during pandemic situation like COVID-19. **(8 classes)**

6. Environment, human habit and health: Basic concept and ideas realting to food habit and health, occupation and health, environmental degradation and health, 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)

9. 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)**
10. Trend of infant mortality and maternal mortality rates in India in relation to selected developed and developing counties using line graph. **(3 Exercises)**
11. Choropleth mapping of infant mortality in India at state level. **(1 Exercise)**
12. Correlation analysis between any physical determinants (monthly rainfall/monthly average temparature) and epidemiological incidence of a disease (monthly malaria cases) in any district of Assam. **(1 Exercise)**
13. Map showing spatial variation of disease incidence rate in India/N.E. India at state level. **(1 Exercise)**
14. Mapping of seasonal variation in the occurrence of Covid-19 cases in Assam at district level using pie graph. **(1 Exercise)**
15. Preparation of questionnaire for healthcare and health status survey. **(1 Exercise)**
16. Computation of distribution pattern of hospitals, health centres, etc. using nearest neighbour analysis. **(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 Missionhttps://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.

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

Syllabus of Discipline Specific Elective

Course Name: Hydrology

Paper Code: GGY-HE-6026

Total Credit: 6 (4+2)

Total Marks: 100

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

Course Objectives:

- To create knowledge base about basic hydrological concepts.
- To know about the hydrological concepts and their applications in river basin studies.

Course outcomes:

After completion of this course the students will be able to speak on the basic concepts of hydrology and its application in river basin studies. Students will also have a practical orientation of the concepts both in laboratory and in the field.

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

Unit I: Principles of Hydrology (30 Marks) (20 classes)

1. Meaning and Scope of hydrology; Importance of hydrological studies in geography with special reference to physical geography. (4 classes)

2. Hydrological cycle: Components and water flow pathways- precipitation, infiltration, evaporation, transpiration, surface runoff, storage, through flow, ground water flow; Water distribution on the earth and the water budget; Concept of rainfall intensity and duration, rainfall frequency. (8 classes)

3. Runoff characteristics: Concept of surface runoff, Generation of surface runoff and Effects of soil, vegetation and ground slope; Concept of runoff hydrographs.(4 classes)

4. Ground water hydrology: Concept of water table and the aquifer, Fluctuation of ground water table, Ground water movements and recharge. (4 classes)

Unit II: River and Basin Hydrology (30 Marks) (20 classes)

1. Basin or catchment hydrology: Precipitation characteristics/types and pattern in relation to basin physiographic units; Concept of basin runoff; Factors affecting basin runoff: Geology and soils, vegetation and land use, physiographic characteristics, meteorological agents and channel and floodplain morphology. (6 classes)

2. River Hydrology: Sources of river flow, Types of flow, Factors causing river flow variation; Concepts of water discharge, Effects of water discharge on channel morphology; Concepts of discharge hydrographs and the stage-discharge hydrographs. (6 classes)

3. Flood hydrology: Definition of flood; Flood occurrence pattern- seasonality and frequency; Flood types- single and multiple event floods, seasonal floods, flash floods, snowmelt flood. (4 classes)
4. Anthropogenic activities and river basin hydrology: Human impacts and factors causing anomalies in river and basin hydrological regimes, Human induced hydrological hazards. (4 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. To estimate runoff from daily water discharge data and to compare the seasonal variation patterns of basin runoff taking
    i. Two major tributaries of Brahmaputra river, one north bank and one south bank tributary and also taking
    ii. Two months -one winter and one summer months (December and July)

    (2 Exercises)
2. To prepare discharge hydrographs of Brahmaputra and any one of its major tributaries atleast for three years taking a gap of five years and to analyse the trend of discharge pattern in the rivers. **(2 Exercises)**
3. To prepare a stage-discharge hydrograph of Brahmaputra at any two gauge sites for a particular year and to compare the patterns in discharge and stage variations in the river. **(2 Exercises)**
4. To construct stage-discharge rating curves separately for all months of the year, for monsoon months (may to October) and for non-monsoon months (November to April taking monthly average data of a period of 5/10 years for Brahmaputra or one of its major tributaries and to analyse the seasonal relationship pattern between stage and discharge . **(2 Exercises)**
5. To prepare a rainfall variability map of Assam/Brahmaputra Valley based on relevant necessary data and to analyse the rainfall variability pattern. **(1 Exercise)**
6. Collection and mapping of monthly /seasonal fluctuation data of ground water level of selected wells (at least 10) in a locality (village/ward). **(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. Madan Mohan and Mimi Das Saikia, 2009, Hydrology , PHI Learning Pvt. Ltd
2. Subramanya, K. (2013). *Engineering hydrology, 4e*. Tata McGraw-Hill Education.
3. Chorley, R. J. (Ed.). (2019). *Introduction to fluvial processes*. Routledge.
4. Brutsaert, W. (2005). *Hydrology: an introduction*. Cambridge University Press.
5. Maidment, D. R. (1993). *Handbook of hydrology* (Vol. 9780070, p. 397323). New York: McGraw-Hill.
6. Te Chow, V. (2010). *Applied hydrology*. Tata McGraw-Hill Education.
7. Davie, T. (2008). *Fundamentals of hydrology*. Routledge.
8. Sharp, J. J., &Sawden, P. G. (2013). *BASIC hydrology*. Elsevier.
9. Dingman, S. L. (2015). *Physical hydrology*. Waveland press.
10. Lane, B. (2002). Statistical Methods in Hydrology.

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CBCS-based U.G. Course in Geography, 2019
Discipline Specific Elective Paper
Course Name: Geography of Tourism
Paper Code: GGY–HE-6036
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course Objectives:
This paper introduces the students to the field of tourism from the lens of geography and itsspecificities. It seeks to develop new insights among students on how tourism and allied activities areshaped by geography of an area and also how such activities areresponsible 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: 4 (60 Marks)
(40 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. (4 classes)

2.Factors and types of tourism: Nature tourism, Cultural tourism, Medical tourism, Agri-tourism, Adventure tourism, Pilgrimage, etc. (6classes)

3. Recent trends in tourism: International and Domestic (India); Eco-Tourism; Sustainable tourism; Meetings, Incentives, Conventions and Exhibitions (MICE) (12classes)

4. Impact of tourism oneconomy,environment andsociety. (6 classes)

5. Tourism development in India: Tourism infrastructures; Case studies of tourism development inHimalaya,Desert,Coastal Areas and North-East India with special reference to Assam; NationalTourism Policiesand prospects. (12 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. Trend of growth of tourist arrivals in the World/India/Assam since 1960 using Movingaverage method and least squares method. (4 assignments)

2. Trend of tourist arrivals in the north-eastern states of India and a 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/North-East India for major tourist destinations. (1 assignment)

5. Preparationof a tourist map of North-East India showinglocations of important nationalparks 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.Preparationof a tourist guide map of North-East India showing location of major tourist destinations and road connectivity routes from Guwahati city. (1 assignment)

7. Mapping of trekking route in a hilly area suitable for adventure tourism using GPS (Field based). (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. 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)

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CBCS-based U.G. Course in Geography, 2019
Syllabus of Discipline Specific Elective (Honours Course)
Course Name: Geography of Resources and Development
Paper Code: GGY-HE-6046
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 classes 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; Urban and Rural Development; Rationale use of resources and the concept of Sustainable Development; Environment and development, Sustainable Development Goals, natural resources management for sustainable rural livelihood. **(8 classes)**

4. **Global issues of Natural Resources and Development**: Sustainable Natural Resource Management; United Nations Framework of Classification for Resources (UNFC); Applications of geospatial technology in sustainable natural resource management; Resource and development planning: Conservation of resources , and integrated environment and resource management. **(10 classes)**

5. **Pattern of Economic Development and Resource use**: Patterns of development between developed and developing countries; Resource management in developed countries (USA, Israel and Japan) and resource management in developing countries (Nepal, Bangladesh and Ethiopia); Concept of equity in resource use; 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 for two points of time based on data from the recent Forest Survey of India's report *(available at: https://fsi.nic.in/forest-report-2019).* **(2 Assignments)**
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 and regression 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 and least squares method. (2 **Assignments)**

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., Renwich 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, RawatPubls., 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. 7. Ramachandran H. and Guimaraes J.P.C., 1991: Integrated Rural Development in Asia – Leaning 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.

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