

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

(Course effective from the academic year 2022)



**Department of Geography
NAGALAND UNIVERSITY
LUMAMI, NAGALAND**

Syllabus for BA/B.Sc. (Honours) Geography
Choice Based Credit System (CBCS)
(Name and Code of the Courses)

Core Courses (CC)

Semester I

CGeg-1: Evolution of Geographical Thought (Theory and Practical)
CGeg-2: Cartographic Techniques (Theory and Practical)

Semester II

CGeg-3: Human Geography (Theory and Practical)
CGeg-4: Thematic Cartography (Theory and Practical)

Semester III

CGeg-5: Economic Geography (Theory and Practical)
CGeg-6: Geography of India (Theory and Practical)
CGeg-7: Statistical Methods in Geography (Theory and Practical)

Semester IV

CGeg-8: Environmental Geography (Theory and Practical)
CGeg-9: Disaster Management (Theory and Practical)
CGeg-10: Field work and research Methodology (Theory and Practical)

Semester V

CGeg-11: Regional Planning and Development (Theory and Practical)
CGeg-12: Remote Sensing and GIS (Theory and Practical)

Semester VI

CGeg-13: Geomorphology (Theory and Practical)
CGeg-14: Climatology (Theory and Practical)

Skill Enhancement Course (SEC)

Semester III

SEC Geg-1: Research Methods (Practical)

Semester IV

SEC Geg-2: Map projection (Practical)

Discipline Specific Elective (DSE)

Semester V

DSE Geg-1
(A) Political geography (Theory and Practical)
(B) Agricultural Geography (Theory and Practical)

DSE Geg-2
(A) Urban Geography (Theory and Practical)
(B) North East India with special Focus on Nagaland (Theory and Practical)

Semester VI

DSE Geg-3

(A)

Resource Geography (Theory and Practical)

(B)

Hydrology and Oceanography (Theory and Practical)

DSE Geg-4

Project Work/Dissertation

Note:

- 1) Additional papers have been recommended to allow greater flexibility and choices in the curriculum.
- 2) All students enrolled in an undergraduate degree program (Honours) will undertake Project/ Dissertation work for 6 credits in lieu of a 6 credit Discipline Specific Elective course in the Sixth semester only.

Generic Elective Course (GEC)**Semester I**

GGeg-1 Physical Geography (Theory and Practical)

Semester II

GGeg-2 Human Geography (Theory and Practical)

Semester III

GGeg-3 Geography of India (Theory and Practical)

Semester IV

GGeg- 4 Environmental Geography (Theory and Practical)

Undergraduate B.A./B.Sc. Honours Programme

Semester	Course Paper	Paper code	Paper Name	Credit
First	CC 1	<u>CGeg-1</u>	Evolution of Geographical Thought (Theory and Practical)	4+2=6
	CC 2	<u>CGeg-2</u>	Cartographic Techniques (Theory and Practical)	4+2=6
	GE 1	<u>GGeg-1</u>	Physical Geography (Theory and Practical)	4+2=6
	AECC 1		English /MIL	2
Second	CC 3	<u>CGeg-3</u>	Human Geography (Theory and Practical)	4+2=6
	CC 4	<u>CGeg-4</u>	Thematic Cartography (Theory and Practical)	4+2=6
	GE 2	<u>GGeg-2</u>	Human Geography (Theory and Practical)	4+2=6
	AECC 2		Environmental Studies (Theory and Practical)	2
Third	CC 5	<u>CGeg-5</u>	Economic Geography (Theory and Practical)	4+2=6
	CC 6	<u>CGeg-6</u>	Geography of India (Theory and Practical)	4+2=6
	CC 7	<u>CGeg-7</u>	Statistical Methods in Geography (Theory and Practical)	4+2=6
	GE 3	<u>GGeg-3</u>	Geography of India (Theory and Practical)	4+2=6
	SEC 1	<u>SECGeg-1</u>	Research Methods (Practical)	2

Semester	Course Paper	Paper code	Paper Name	Credit
Fourth	CC 8	<u>CGeg-8</u>	Environmental Geography (Theory and Practical)	4+2=6
	CC 9	<u>CGeg-9</u>	Disaster Management (Theory and Practical)	4+2=6
	CC 10	<u>CGeg-10</u>	Field work and research methodology	4+2=6
	GE 4	<u>GGeg-4</u>	Environmental Geography (Theory and Practical)	4+2=6
	SEC 2	<u>SECGeg-2</u>	Map Projection (Practical)	2
Fifth	CC 11	<u>CGeg-11</u>	Regional Planning and Development (Theory and Practical)	4+2=6
	CC 12	<u>CGeg-12</u>	Remote Sensing and GIS (Theory and Practical)	4+2=6
	DSE 1 (any one)	<u>DSEGeg-1 (A)</u>	Political Geography (Theory and Practical)	4+2=6
		<u>DSEGeg-1(B)</u>	Agricultural Geography (Theory and Practical)	4+2=6
	DSE 2 (any one)	<u>DSEGeg-2 (A)</u>	Urban Geography (Theory and Practical)	4+2=6
		<u>DSEGeg-2 (B)</u>	North East India with Special Focus on Nagaland (Theory and Practical)	4+2=6
Sixth	CC 13	<u>CGeg-13</u>	Geomorphology (Theory and Practical)	4+2=6
	CC 14	<u>CGeg-14</u>	Climatology (Theory and Practical)	4+2=6
	DSE 3 (any one)	<u>DSEGeg-3 (A)</u>	Resource Geography (Theory and Practical)	4+2=6
		<u>DSEGeg-3 (B)</u>	Hydrology and Oceanography (Theory and Practical)	4+2=6
	DSE 4	<u>DSEGeg-4</u>	Project work/ Dissertation	4+2=6

Core Course (CC) for Honours
CBCS-based U.G. Course in Geography

Course Name: Evolution of Geographical Thought
Paper Code: CGeg-1
Total Credits: 6 (4+2)

Course objectives

- This paper is a core paper that intends to introduce students to philosophical and methodological issues in the development of the discipline of geography.
- To assess the nature and trend of ancient, modern and post-modern trends in the field of geography

Course outcomes

- The paper will be useful for students in understanding perspectives on the development and contemporary trends in geography and its systematic study.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

Evolution of Geographical Thought	Part A (Theory)	Credits 4
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1. Paradigms and Regional concepts:
 - a) Geography as a science of planet earth;
 - b) Geography as a science of distribution
 - c) Regional Concept: Physical and cultural regions
2. Pre-Modern Period:
 - a) Pre-classical period – Greeks and Romans (Eratosthenes and Strabo)
 - b) Medieval period- Arabs (Al-Masudi)
 - c) Age of exploration and discovery
 - d) Classical Period- founders of modern geography: Alexander Von Humboldt, Carl Ritter.
3. Modern geography – Evolution of Geographical Thinking:
 - a) France- Vidal de La blache
 - b) Germany- Friedrich Ratzel
4. Debates –
 - a) Physical vs Human geography
 - b) Environmental Determinism and Possibilism
 - c) Systematic and Regional
5. Trends –
 - a) Quantitative Revolution and its Impact
 - b) Modern themes: Behaviouralism

Evolution of Geographical Thought	Part B (Practical)	Credits 2
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1. Mapping of routes of exploration and discoveries (Marco Polo, Christopher Columbus, Vasco-da Gama, and James Cook).
2. Preparation of a world map highlighting the major developments of geography indicating the contribution, name of the contributor and year of contribution.
3. Flow chart- Contributions to the development of Geography in different ages (Name of contributor and name of contribution at different points of time).
4. Viva voce and practical note book.

Reading List

1. Arentsen M., Stam R. and Thuijs 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. Hartshorne 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. Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
8. Johnston R. J., 1997: Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London.
9. Kapur A., 2001: Indian Geography Voice of Concern, Concept Publications.
10. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford.
11. Soja, Edward 1989. Post-modern Geographies, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

Course Name: Cartographic Techniques

Paper Code: CGeg-2

Total Credits: 6 (4+2)

Course objectives

- This practical 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; map projection and construction of selected few; and interpretation of topographical maps.
- It also deals with various cartographic techniques associated with the understanding of topography through construction of different types of profiles, transect chart and slope map.

Course outcomes

- Understanding the importance of various cartographic techniques in geographical study.
- General understanding of map scale and map content for topographical map interpretation.
- Acquaintance of different cartographic techniques for measurement and representation of various facets of topography or terrain condition of any area.

Cartographic Techniques

Part A (Theory)

Credits 4

1. Cartography – Meaning, Scope and Branches of Cartography.
2. Development of cartography- Ancient period, Medieval period, Early Modern period and Recent period
3. Map Scales- Concept, types of scales and their conversion; representation of point, line and area in maps.
4. Study of Topographical Maps: Topographical map content and numbering system, general interpretation of toposheets in respect of physical and cultural details.

5. Map Projections– Concept of Map Projection, Classification of Map Projections and basics properties and uses.

Cartographic Techniques	Part B (Practical)	Credits 2
1. Construction of graphical scale (linear, diagonal and comparative), conversion of map scale. 2. Construction of graticules of Zenithal Gnomonic Projection, Conical Projection with one and two standard parallels, Simple Cylindrical projections along with their properties, uses and limitations. 3. Interpretation of topographic maps. 4. Viva voce and practical note book.		

Reading List

1. Anson R. and Ormeling F.J., 1994: International Cartographic Association: Basic Cartographic Vol. Prgmen Press.
2. Gupta K.K. and Tyagi, V.C., 1992: Working with Map, Survey of India, DST, New Delhi.
3. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
4. Monkhouse F.J. and Wilkinson H.R., 1973: Maps and Diagrams, Methuen, London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
7. Singh R.L. and Singh R.P.B., 1999: Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

Course Name: Human Geography

Paper Code: CGeg-3

Total Credits: 6 (4+2)

Course objectives

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

Course outcomes

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

Human Geography	Part A (Theory)	Credits 4
1. Meaning, nature and scope of Human Geography; Development and branches of Human Geography.		

2. Space and Society; Race; Religion and Language.
3. Population: Population Growth and demographic transition theory; Factors influencing distribution of population; density of population.
4. Migration: Factors influencing migration; types of migration; consequences of migration.
5. Settlements: Geographical factors influencing human settlement. Origin and growth of Rural and Urban settlements. Rural Settlements: Types and pattern; Urban Settlements: Morphology and functional classification.

Human Geography	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Diagrammatic data presentation: line, bar and circle. 2. Representation of population data by point (Dot and Proportionate Circles). 3. Graphical representation and analysis- Age-Sex pyramids. 4. Viva voce and practical note book. 	

Reading List

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
3. Daniel, P.A. and Hopkinson, M.F. (1989). The Geography of Settlement, Oliver & Boyd, London.
4. Johnston R; Gregory D, Pratt G. et.al. (2008). The Dictionary of Human Geography, Blackwell Publication.
5. Jordan-Bychkov et al. (2006). The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.

Course Name: Thematic Cartography

Paper Code: CGeg-4

Total Credits: 6 (4+2)

Course objectives

- This is a practical course on understanding basic characteristics of map and techniques of constructing various types of cartograms and thematic maps. It also handles point, line and area data, and throws light on representation of such data in maps including choropleth and isopleth.

Course outcomes

- General understanding of map characteristics and map design.
- Acquiring basic knowledge about thematic mapping, cartogram and concept of point, line and area data
- Understanding the techniques of constructing different types of cartograms (line graph, bar graph, pie graph, etc) by representing various geographical data
- Understanding the techniques of preparing different thematic maps using choropleth and isopleth method.

Thematic Cartography	Part A (Theory)	Credits 4
	<ol style="list-style-type: none"> 1. Map- Classification and types; principles of map design. 2. Thematic cartography: Meaning and Concept; importance and types 3. Thematic mapping: principles and techniques of representation of Physical and human geographic data. 	

4. Acquiring basic knowledge about thematic mapping techniques: Choropleth, isopleths.
5. Cartograms: Definition and use of cartographic symbols- Isochronic cartograms and Traffic flow diagrams.

Thematic Cartography	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Thematic mapping techniques: Choropleth, Isopleth. 2. Thematic mapping techniques: dot, sphere and proportionate circle techniques. 3. Techniques of constructing different types of Cartograms- Isochronic and Traffic flow. 4. Viva voce and practical note book. 	

Reading List

1. Cuff, J. D. and Mattson, M. T., 1982: Thematic Maps: Their Design and Production, Methuen Young Books
2. Dent B.D., Torguson J.S., and Holder T.W., 2008: Cartography: Thematic Map Design (6th Edition), McGraw-Hill Higher Education
3. Gupta K.K. and Tyagi V.C., 1992: Working with Maps, Survey of India, DST, New Delhi
4. Kraak M.-J. and Ormeling F., 2003: Cartography: Visualization of Geo-Spatial Data, Prentice-Hall.
5. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
6. Singh R.L. and Singh R.P.B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Slocum T.A., McMaster R.B. and Kessler F.C., 2008: Thematic Cartography and Geovisualization (3rd Edition), Prentice Hall.
8. Tyner J. A., 2010: Principles of Map Design, The Guilford Press.
9. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

Course name: Economic Geography
Paper Code- CGeg-5
Total Credits: 6 (4+2)

Course objectives

- This paper is a core paper that intends to introduce students to the principles of economic geography
- It seeks to develop new insights among students on the relevance of economy and geography and associated problems in contemporary times.

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 research programme.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

Economic Geography	Part A (Theory)	Credits 4
1. Introduction: Concept and classification of economic activity; Theories-Agriculture (Von Thunen theory), Industry (Weber's theory).		
2. Primary Activities: Subsistence and Commercial agriculture, forestry, fishing and mining.		
3. Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel).		
4. Tertiary Activities: Transport and communication- air, water and land transport,		
5. Bases of International trade; major trading blocs-EU and ASEAN.		

Economic Geography	Part B (Practical)	Credits 2
1. Representation of economic data by graph (line, bar,).		
2. Representation of economic data by statistical diagrams (pie and block pile diagram).		
3. Representation of economic data by distribution maps (choropleth and isopleth).		
4. Viva voce and practical note book.		

Reading List

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

Course Name: Geography of India

Paper Code: CGeg-6

Total Credits: 6 (4+2)

Course objectives

- This paper is a core paper that intends to introduce students to the India as a geographical entity.
- It seeks to develop new insights among students on the relevance of geographical studies and India's contemporary geographical issues.

Course outcomes

- The paper will be useful for students in developing perspectives on Indian geography and its systematic study.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services

Geography of India	Part A (Theory)	Credits 4
1. Physical: Physiographic Divisions, soil and vegetation, climate		
2. Population: Factors influencing spatial distribution; density and growth.		

3. Social: Distribution of population by religion and language.
4. Economic: Mineral and power resources-distribution and utilization of iron ore, coal, petroleum; Agricultural- production and distribution of rice and wheat.
5. Transport: Roads, railways and air transport.

Geography of India	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Monthly temperature and rainfall graphs of five selected stations from different physiographic regions of India. 2. Representation of geographical data using Ergograph. 3. Representation of population data using age sex pyramid. 4. Viva voce and practical note book. 	

Reading List

1. Deshpande C.D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B.L.C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography– An International Perspective. Vol. 3 –Indian Perspective.
4. Sdyasuk Galina and P. Sengupta (1967): Economic Regionalisation of India, Census of India
5. Sharma, T.C. 2003: India- Economic and Commercial Geography. Vikas Publ., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
7. Singh, Jagdish 2003: India- A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
8. Spate O.H.K. and Learmonth A.T.A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., 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. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

Course Name: Statistical Methods in Geography
Paper Code: CGeg-7
Total Credits: 6 (4+2)

Course objectives

- The paper Statistical 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. This paper provides an understanding of the pure and applied nature of Geography along with the key elements in the discipline.

Course outcomes

- Thorough understanding of the statistical methods and techniques used in Geography

- Understanding of data tabulation, sample size and types and the methods of handling data in the field;
- Deeper knowledge of bivariate correlation and regression for geographic data analysis and interpretation along with mapping.

Statistical Methods in Geography	Part A (Theory)	Credits 4
1. Importance and significance of statistics in Geography		
2. Sources of Geographical data for statistical analysis		
3. Sampling: Need and types; Significance and methods of random sampling.		
4. Theoretical distribution: Frequency, Cumulative frequency, normal and probability.		
5. Measures of dispersion- range, mean deviation, standard deviation, coefficient of variation.		
Statistical Methods in Geography	Part B (Practical)	Credits 2
1. Measures of Central Tendency (Mean, Median and Mode).		
2. Measures of Dispersion (Quartile deviation); Time series analysis of Temporal data.		
3. Correlation (Karl Pearson method) and regression analysis.		
4. Viva voce and practical note book.		

Reading List

1. Berry B. J. L. and Marble D. F. (eds.): Spatial Analysis – A Reader in Geography.
2. Ebdon D., 1977: Statistics in Geography: A Practical Approach.
3. Gragory,S., :1963: Statistical
4. Hammond P. and McCullagh P. S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press.
5. King L. S., 1969: Statistical Analysis in Geography, Prentice-Hall.
6. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
7. Monkhouse, F.J. & Wilkinson, H.R., 1989: Maps and Diagrams, B.I Publication, New Delhi
8. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
9. Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi
10. Silk J., 1979: Statistical Concepts in Geography, Allen and Unwin, London.
11. Spiegel M. R.: Statistics, Schaum's Outline Series.
12. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.

Course Name: Environmental Geography
Paper Code: CGeg-8
Total Credits: 6 (4+2)

Course objectives

- This paper 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.
- The paper will enable the students to understand the various facets of environment, its degradation as well as management.
- To provide understanding and awareness of Environmental issues at Global and regional level

Course outcomes

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

Environmental Geography	Part A (Theory)	Credits 4
1. Environmental Geography – Concept, Scope and Significance 2. Human-Environment Relationships– Historical Progression, Adaptation in different Biomes. 3. Eco-system: concept, types and components, structure and functions; Ecology– Concept and principles. 4. Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, Bio-Depletion. 5. Environmental Programmes and Policies – Global, National and Local.		

Environmental Geography	Part B (Practical)	Credits 2
1. Quality assessment of soil (Organic matter and NPK) or water (pH and Total Dissolved Solids) using field kit. (OR) 2. Project on environmental problems of India/ North East India.		

Reading List

1. Chandna, R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham, W.P. and Cunningham M.A., 2004: Principles of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
4. Miller, G.T., 2004: Environmental Science: Working with the Earth, Thomson BrooksCole, Singapore.
5. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
6. 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
7. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
8. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan. Allahabad.
9. 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
10. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford & IBH Pub.

Course Name: Disaster Management

Paper Code: CGeg-9

Total Credits: 6 (4+2)

Course objectives

- To impart knowledge on different types of disasters to the students

- To provide practical knowledge in the field on the causes and impacts of disasters occurring in time and over space.
- To make the students learn about the disaster-specific management strategies to be adopted to reduce loss and damages.

Course outcomes

- The students will experience ground reality of destructive damage of disasters in the field.
- The students with their experience may extend all possible help and co-operation to the victims as well as authorities engaged in disaster management.
- The students will gain practical experience in the entire process of disaster management through their project work assigned on a specific problem.

Disaster Management	Part A (Theory)	Credits 4
	<ol style="list-style-type: none"> 1. Disaster –definition and concepts: hazards disaster-risk and vulnerability. 2. Classification of Disaster: Manmade and Natural Disasters. 3. Disasters in India – Flood, landslide, earthquake and cyclone (causes, impact distribution and mapping). 4. Human induced disaster: Fire hazard, chemical, industrial accidents. 5. Responses and mitigation to disaster: Mitigation and preparedness, NDMA and NDIM; Indigenous Knowledge and Community Based Disaster management; Do's and Don't's During and Post Disasters. 	

Disaster Management	Part B (Practical)	Credits 2
A Project Report based on any one of the following-		
1. Floods		
2. Cyclone and Hailstorms		
3. Earthquake		
4. Landslides		
5. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents		

Project Report

1. Each student will prepare an individual project report based on primary and secondary data collected from local area.
2. The word count of the report should be about 4000 excluding figures, tables, photographs, maps, references and appendices.
3. One typed copy of the report on A 4 size paper should be submitted.

Reading List

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Govt of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.

6. Sinha, A. (2001). *Disaster Management: Lessons Drawn and Strategies for Future*, New United Press, New Delhi.
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).

Course Name: Field Work and Research Methodology

Paper Code: CGeg-10

Total Credits: 6 (4+2)

Course objectives

- The paper Field Work and Research Methodology is of pedagogical importance as it lets students acquire the first-hand experience about the geography of a particular region.
- It also helps to gather required information so as the problem under investigation is studied in depth as per the predefined objectives.

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 which doing quality research.
- Students perceive fieldwork to be beneficial to their learning because through it they experience ‘geographical reality’, 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.
- Develop understanding about designing and writing a field report.

Research Methodology and Field work Part A (Theory)

Part A (Theory)

Credits 4

1. Research in Geography- meaning, types and significance
2. Field Work in Geographical Studies – Role, Value, Data and Ethics of Field-Work
3. Field Tools and Techniques- Questionnaires; Interview; Space Survey (Transects and Quadrants, Constructing a Sketch)
4. Field study and preparation of field report- Aims and Objectives, Methodology, Analysis, Interpretation.
5. Surveying- definition, types and methods

Research Methodology and Field work Part B (Practical)

Part B (Practical)

Credits 2

1. Surveying: Plane Table, Chain and tape.
2. Surveying: Prismatic Compass (Open Traverse and Closed Traverse); determination of height using Theodolite.
3. Viva voce and practical note book.

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.
9. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

Course Name: Regional Planning and Development

Paper Code: CGeg-11

Total Credits: 6 (4+2)

Course objectives

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

Course outcomes

- The paper will be useful for students in developing ideas on disparities within and between countries and their fallout.
- The paper will help provide theoretical insights and perspectives to students if they wish to pursue a research program in future.
- The paper will be very useful for students preparing for UGC NET-JRF / SLET exam and other competitive exams including civil services.

Regional Planning and Development	Part A (Theory)	Credits 4
<ol style="list-style-type: none"> 1. Region: Concept, types and delineation of planning region. 2. Regional planning: Evolution and types; Objectives and principles of Regional Planning. 3. Regional Planning in India: Macro, meso and micro level planning; Local level planning and Panchayati Raj (GPDP); Participatory approach in planning; NITI Aayog. 4. Concept of Development and Regional Disparity, Concept of sustainable development, Measuring development: Indicators (Economic, Social and Environmental); Human development. 5. Planning regions of India with special reference to North-East India 		

Regional Planning and Development	Part B (Practical)	Credits 2
<ol style="list-style-type: none"> 1. Preparation of flow cartogram to show volume of inter-state movement of different commodities in India/NE India. 2. Thematic maps- Delineation of functional regions. 3. Viva voce and practical note book. 		

Reading List

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

Course Name: Remote Sensing and GIS (Practical)

Paper Code: CGeg-12

Total Credits: 6 (4+2)

Course objectives

- This paper 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 UGC NET/SLET exams and other competitive exams including the civil services.

Remote Sensing and GIS	Part A (Theory)	Credits 4
1. Remote Sensing and GIS: Definition and Components, Development, Platforms and Types. 2. Aerial Photography and Satellite Remote Sensing: Principles, Types and Geometry of Aerial Photograph; Principles of Remote Sensing, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors. 3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure. 4. Image Processing (Digital and Manual) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un- supervised), Geo-Referencing; Editing and Output; Overlays. 5. Interpretation and Application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring.		

Remote Sensing and GIS	Part B (Practical)	Credits 2
<ol style="list-style-type: none"> 1. Aerial photo interpretation (using pocket stereoscope); and satellite imagery interpretation. 2. Image Processing (Digital & Manual), Classification (Supervised & Unsupervised); Georeferencing, Editing and Output, Overlay. 3. GPS data collection, plotting and mapping of various features within college campus. 4. Viva voce and practical note book. 		

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

Course name: Geomorphology
Paper Code- CGeg-13
Total Credit: 6 (4+2)

Course objectives

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

Course outcomes

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

Geomorphology	Part A (Theory)	4 Credits
	<ol style="list-style-type: none"> 1. Geomorphology— Nature and scope; Development of Geomorphology- Geomorphological school in USA, Europe and India. 2. Earth's interior; Wegener's theory of Continental Drift; Plate Tectonics. 3. Geomorphic Processes- Weathering, Mass Wasting; Drainage patterns and types. 4. Cycle of Erosion (Davis and Penck) 5. Evolution of Landforms (Erosional and Depositional)- Fluvial, Karst, Aeolian, Glacial, and Coastal. 	

Geomorphology	Part B (Practical)	2 Credits
	<ol style="list-style-type: none"> 1. Interpretation of Topographical Maps. 2. Preparation of profile (serial, superimposed, projected and composite). 3. Preparation of Slope Map/ Relative Relief Map using Wentworth's method and Smith's method. 4. Viva voce and practical note book. 	

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

Course Name: Climatology

Paper Code: CGeg-14

Total Credits: 6 (4+2)

Course objectives

- This paper intends to introduce students to the rationale underlying climatological studies in geography
- It seeks to develop new insights among students on the relevance of climatic variable strengthening on climate change.

Course outcomes

- The paper will be useful for students in developing ideas on climate related aspects of geographical analyses.
- The paper will help provide theoretical insights and perspectives to students if they wish to pursue a research programme in future.

- The paper will be very useful for students preparing for UGC NET-JRF / SLET exam and other competitive exams including civil services.

Climatology	Part A (Theory)	Credits 4
	<ol style="list-style-type: none"> 1. Definition and significance of Climatology; Composition and Structure of Atmosphere 2. Insolation and Heat Budget; horizontal and vertical distribution of temperature. 3. Atmospheric Pressure- Pressure belts; Types of winds. 4. Airmasses- meaning and characteristics; Fronts (formation, classification and types); cyclones (temperate and tropical) 5. Classification of world climate (Koppen, Thornthwaite); Role and response of man in climate change. 	

Climatology	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Handling and use of weather instruments. 2. Interpretation of weather map of India. 3. Construction and interpretation of hythergraph and climograph. 4. Viva voce and practical note book. 	

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, New Jersey.
5. Oliver J. E. and Hidore J.J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.

Skill Enhancement Course (SEC)

CBCS-based U.G. Course in Geography

Course Name: Research Methods (Practical)

Paper Code: SEC Geg-1

Total Credits: 2

Course objectives

- The paper will enable students to understand how to approach a research problem and to formulate research objectives and research questions in proper perspective. In addition, knowledge of formulating of hypothesis and testing, framing of questionnaires, understand both qualitative and quantitative techniques of data collection and analyze the same.
- Understand the basics and utility of review of literature and preparation of research report.

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 which doing quality research

Research Methods (Practical)

Credits 2

1. Data Collection: Type and Sources of Data; Methods of Collection; Input and Editing
2. Data Analysis: Qualitative Data Analysis; Quantitative Data Analysis.
3. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract Preparation of a Research Report.
4. Viva voce and practical notebook.

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. Misra, R.P. (2002) Research Methodology, Concept Publications, New Delhi.
5. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
6. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
7. 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. 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. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

Course Name: Map Projection (Practical)

Paper Code: SEC Geg-2

Total Credits: 2

Course objectives

- To understand the concepts of map projection.
- To understand the classification and properties of map projection.
- To develop graphical construction of different projections.

Course outcomes

- Thorough understanding of the concepts and construction of map projections.
- The students learn about the operational process that involves dimensional transformation of the curved surface of the earth on a flat plain.

Map Projections (Practical)

Credits 2

1. Map projection: Gall's and Mercator's with outline maps drawn

2. Map projection: Molleweid's and Sinusoidal with outline maps drawn
3. Viva voce and practical notebook.

Reading List

1. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
2. Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams, Methuen, London.
3. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London.
4. Raiz, E. (1962): Principles of Cartography, McGraw Hill, New York.
5. Robinson, Arthur et al., (1978): Elements of Cartography, John Wiley and Sons, New York.
6. Sarkar, A.K. (1997): Practical Geography: A Systematic Approach, Orient Longman, Kolkata.
7. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
8. Steers, J. A. (1965): An Introduction to the Study of Map Projection, University of London Press, London.
9. Talukdar, S. (2008): Introduction to Map Projection, EBH Publishers, Guwahati

Discipline Specific Elective (DSE)

CBCS-based U.G. Course in Geography

Course Name: Political Geography
Paper Code: DSEGeg-1 (A)
Total Credits: 6 (4+2)

Course objectives

- This paper seeks to introduce students to the geographical aspects behind political phenomena
- It seeks to develop new insights among students on the relevance of political geographical studies in a changing global scenario.

Course outcomes

- The paper remains useful for students in developing ideas on geopolitics and allied phenomena and will aid students that may pursue a research programme.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

Political Geography	Part A (Theory)	Credits 4
<ol style="list-style-type: none"> 1. Introduction: Concepts, Nature and Scope. 2. Concept of Nation and State; Attributes of State— Shape, Size, Territory and Sovereignty; Frontiers and Boundaries; 3. Development of Geopolitics, Concept of Organic state; Global strategic models (Heartland and Mahan's Sea power concept) 4. Electoral Geography – Geography of Voting, Geographic Influences on voting pattern, Geography of Representation, Gerrymandering. 5. Politics of Displacement; Issues of relief, compensation and rehabilitation with reference to Dams. 		

Political Geography	Part B (Practical)	Credits 2
1. Preparation of spatial distribution maps of India: gender, caste, religion. 2. Analysis of migration data: (a) rural to urban and (b) urban to urban migration 3. Viva voce and practical notebook.		

Reading List

1. Agnew J., 2002: Making Political Geography, Arnold.
2. Agnew J., Mitchell K. and Toal G., 2003: A Companion to Political Geography, Blackwell.
3. Cox K. R., Low M. and Robinson J., 2008: The Sage Handbook of Political Geography, Sage Publications
4. Cox K., 2002: Political Geography: Territory, State and Society, Wiley-Blackwell
5. Gallaher C., et al, 2009: Key Concepts in Political Geography, Sage Publications.
6. Glassner M., 1993: Political Geography, Wiley.
7. Jones M., 2004: An Introduction to Political Geography: Space, Place and Politics, Routledge.
8. Mathur, H M and M M Cernea (eds.) Development, Displacement and Resettlement – Focus on Asian Experience, Vikas, Delhi
9. Painter J. and Jeffrey A., 2009: Political Geography, Sage Publications.
10. Taylor P. and Flint C., 2000: Political Geography, Pearson Education.
11. Verma M K (2004): Development, Displacement and Resettlement, Rawat Publications, Delhi
12. Hodder Dick, Sarah J Llyod and Keith S McLachlan (1998), Land Locked States of Africa and Asia (vo.2), Frank Cass.

Course Name: Agricultural Geography

Paper Code: DSE Geg-1 (B)

Total Credits: 6 (4+2)

Course objectives

- This paper introduces students to the field of agricultural geography and its specificities
- It seeks to develop new insights among students on the relevance of agriculture and allied activities shape the economy and geography of an area, region, country or the globe.

Course outcomes

- The paper will be useful for students in developing ideas on how geographical factors tangent on agricultural activities and how geographers seek to address issues of agricultural development and agricultural disparities.
- It will build skills for students seeking to enrol in a research programme and/or provide openings for them with agricultural /rural planning agencies

Agricultural Geography

Part A (Theory)

Credits 4

1. Introduction, nature and scope; definition and classification of land use/land cover.
2. Determinants of Agriculture: Physical, Technological and Institutional.
3. Agricultural Regions of India: Agro-climatic, Agro-ecological & Crop Combination Regions.

4. Agricultural Systems of the World (Whittlesey's classification) and Agricultural Land use model (Von Thunen, modification and relevance).
5. Agricultural Revolutions in India: Green, White, Blue, Pink.

Agricultural Geography	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Preparation and interpretation of crop calendar using Ergograph. 2. Spatial variations in land use pattern in North East India with Pie diagram. 3. Mapping of spatial pattern of Intensity of Cropping in North East India. 4. Viva voce and practical notebook 	

Reading List

1. Basu, D.N., and Guha, G.S., 1996: Agro-Climatic Regional Planning in India, Vol.I & II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, 1992: Agriculture in the City Countryside, Belhaven Press, London.
3. Burger, A., 1994: Agriculture of the World, Aldershot, Avebury.
4. Grigg, D.B., 1984: Introduction to Agricultural Geography, Hutchinson, London.
5. Ilbery B. W., 1985: Agricultural Geography: A Social and Economic Analysis, Oxford University Press.
6. Mohammad, N., 1992: New Dimension in Agriculture Geography, Vol. I to VIII, Concept Pub., New Delhi.
7. Roling, N.G., and Wageruters, M.A.E.,(ed.) 1998: Facilitating Sustainable Agriculture, Cambridge University Press, Cambridge.
8. Shafi, M., 2006: Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi.
9. Singh, J., and Dhillon, S.S., 1984: Agricultural Geography, Tata McGraw Hill, New Delhi.
10. Tarrant J. R., 1973: Agricultural Geography, David and Charles, Devon

Course Name: Urban Geography

Paper Code: DSE Geg-2 (A)

Total Credits: 6 (4+2)

Course objectives

- This paper introduces students to the field of urban geography and its specificities
- It seeks to develop new insights among students on the relevance of an urban economy and 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 city specific problems and issues.
- It will build skills for students seeking to enrol in a research programme and/or provide openings for them with urban/city planning agencies.

Urban Geography	Part A (Theory)	Credits 4
	<ol style="list-style-type: none"> 1. Urban geography: Introduction, nature and scope. 2. Patterns of Urbanization in developed and developing countries. 	

3. Functional classification of towns; Models in Urban studies (Concentric Zone Model, Multiple Nuclei model)
4. Urban Issues: problems of housing, slums, civic amenities (water and transport)
5. Case studies of Delhi and Chandigarh with reference to Land use and Urban Issues.

Urban Geography	Part B (Practical)	Credits 2
	<ol style="list-style-type: none"> 1. Map showing distribution of class I and II urban centres in NE India by using proportionate sphere method. 2. Calculation of distribution pattern of urban settlements in a District/State of N.E. India using Nearest Neighbour Analysis. 3. Choropleth map showing spatial pattern of level of urbanization in N.E. India. 4. Viva voce and practical notebook. 	

Reading List

1. Fyfe N. R. and Kenny J. T., 2005: The Urban Geography Reader, Routledge.
2. Graham S. and Marvin S., 2001: Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition, Routledge.
3. Hall T., 2006: Urban Geography, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
5. Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall New York.
6. Knox P.L. and Pinch S., 2006: Urban Social Geography: An Introduction, Prentice-Hall.
7. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor and Francis.
8. Sassen S., 2001: The Global City: New York, London and Tokyo, Princeton UniversityPress.
9. Ramachandran, R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
10. Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi
11. 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.
12. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks and resilience in Asian megacities Advances in Geographical and Environmental Studies, Springer

Course Name: North East India with Special Focus on Nagaland

Paper Code: DSE Geg-2 (B)

Total Credits: 6 (4+2)

Course objectives

- This paper that intends to introduce students to North East India as a geographical entity.
- To understand the geographical setting of North East India and Nagaland and to analyze the regions potentially for sustainable development

Course outcomes

- The paper will be useful for students in developing perspectives on geography of North East India and its systematic study.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

North East India with Special Focus on Nagaland Part A (Theory) Credits 4

1. North East India: Physical characteristics: Physiography, Drainage, Climate, Soil and Natural vegetation
2. Population of North East India: Growth, Distribution and Density, Age- Sex Composition, Rural-Urban Composition
3. Economy- Classification and types, Problems and Prospects (Agriculture, Industries, transport and Communication)
4. Nagaland: Physiography, Climate and Natural Vegetation; Biodiversity and its Conservation issues.
5. Nagaland: Demographic characteristics- Population Growth, Distribution and Density, Age Sex Composition.

North East India with Special Focus on Nagaland Part B (Practical) Credits 2

1. Trend of population growth and growth rates in N.E. India/Nagaland since 1901 using Census of India data (Source: censusindia.gov.in)
2. Spatial variation in the patterns of religious composition of population in North East India using pie-graph.
3. Choropleth mapping to show density of population in Nagaland.
4. Viva voce and practical notebook.

Reading List

1. Taher, M. and Ahmed, P. (Revised Edition, 2014): Geography of North East India, Mani Manik Prakash, Guwahati
2. Bhattacharyya, N.N. (2005): North East India: A Systematic Geography, Rajesh Pub. New Delhi.
3. Gopal Krishnan, R. Geography of North East India.
4. Gopal Krishnan, R. (1991): North East India: Land, People and Economy, Vikash Publishing House, New Delhi.
5. Sebu, Sonyhulo (2013): Geography of Nagaland, Spectrum Publications Guwahati, Delhi.
6. Singh, S. (1994): Agricultural Development in North East India: A Regional Analysis, Kaushal Publications, Shillong.

Course Name: Resource Geography

Paper Code: DSE Geg- 3 (A)

Total Credits: 6 (4+2)

Course objectives

- This theory course basically deals with concept of resource and its classification, and the distribution, utilization and management of land, water, forest and energy resources.
- It also focuses on the natural resource base and its problems of conservation and management.
- It also provides basic idea about sustainable development of resources.

Course outcomes

- Understanding the basic concept of resource and its various types and their utilities
- Acquiring basic information about potentials and management of resources like land, water, forest and power in global context.
- Understanding the prevailing natural resource potentials and problems of management.

Resource Geography	Part A (Theory)	Credits 4
1.	Definition, Nature and Scope of Resource Geography: Types of resources	
2.	Distribution, Utilization, Problems and Management of Mineral Resources (Coal, Petroleum) and Water Resources.	
3.	Distribution, Utilization, Problems and Management of Forests and Energy Resources	
4.	Issues Related to Human resources: Social and Demographic issues; Carrying capacity of the land.	
5.	Conservation of natural resources and Sustainable Resource Development	

Resource Geography	Part B (Practical)	Credits 2
1.	Satellite imagery interpretation- Forest cover, Water bodies.	
2.	Satellite imagery interpretation- Settlements.	
3.	Representation of Human Development Index in India using choropleth method.	
4.	Viva voce and practical notebook.	

Reading List

1. Cutter, S.N., Renwick, H.L. and Renwick W., 1991: Exploitation, Conservation, 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.

Course Name: Hydrology and Oceanography
Paper Code: DSE Geg-3 (B)
Total Credits: 6 (4+2)

Course objectives

- To provide knowledge on the principles, concepts and scope of hydrology and oceanography.
- To make the students understand about the importance and relevance of the study of hydrology and oceanography as branches of physical geographic study.

Course outcomes

- The students will learn to analyze the hydrology of any area, even his/her local area and identify the components of the hydrological cycle operating in the area.
- The students will learn the dynamic processes associated with the oceans and also the importance and values of the ocean resources.

Hydrology and Oceanography	Part A (Theory)	Credits 4
1. Hydrological Cycle: Systems approach in hydrology, human impact on the hydrological cycle; Precipitation, interception, evaporation, evapo-transpiration, infiltration, ground- water, run off and over land flow. 2. River Basin & Problems of regional Hydrology: Characteristics of river basins, basin surface run-off. 3. Surface configuration of Ocean Floor; Oceanic Movements – Waves, Currents and Tides. 4. Ocean Salinity and Temperature – Distribution and Determinants. 5. Coral Reef- Factors affecting formation of Coral Reefs, Types; Classification of Marine Deposits.		

Hydrology and Oceanography	Part B (Practical)	Credits 2
1. Monthly rainfall dispersion diagram (Quartile method), 2. Construction and interpretation of Hypsometric and Bathymetric curve. 3. Representation of rainfall and temperature by line and bar graph. 4. Viva voce and practical notebook.		

Reading List

1. Andrew. D. ward and Stanley, Trimble (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Karanth, K.R., 1988: Ground Water: Exploration, Assessment and Development, Tata-McGraw Hill, New Delhi.
3. Ramaswamy, C. (1985): Review of floods in India during the past 75 years: A Perspective. Indian National Science Academy, New Delhi.
4. Rao, K.L., 1982: India's Water Wealth 2nd edition, Orient Longman, Delhi.
5. Singh, Vijay P. (1995): Environmental Hydrology. Kluwar Academic Publications, The Netherlands.
6. Anikouchine W. A. and Sternberg R. W., 1973: The World Oceans: An Introduction to Oceanography, Prentice-Hall.
7. Garrison T., 1998: Oceanography, Wordsworth Company, Belmont.
8. Kershaw S., 2000: Oceanography: An Earth Science Perspective, Stanley Thornes, UK.

9. Pinet P. R., 2008: Invitation to Oceanography (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
10. Sharma R. C. and Vatal M., 1980: Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
11. Sverdrup K. A. and Armbrust, E. V., 2008: An Introduction to the World Ocean, McGrawHill, Boston.
12. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Landscape ecology and water management. Proceedings of IGU Rohtak Conference, Volume 2. Advances in Geographical and Environmental Studies, Springer.

Course Name: Project work/ Dissertation

Paper Code: DSE Geg-4

Total Credits: 6

1. A Project work/ Dissertation is an optional course a student can undertake in the 6th Semester in place of one DSE.
2. A student needs to undertake the dissertation under the supervision of a teacher of the same department of the college.
3. The Project work/ Dissertation can be Experimental, Theoretical or both.
4. A teacher can supervise more than one student/ one group of students depending on the number of students/ number of teachers present in the department.
5. After completion of Project work/ Dissertation the report may be submitted to the department for evaluation. The evaluation maybe done internally by a committee constituted by the department under the Chairmanship of Head of the Department. If any college wants, they can invite one external examiner from the neighboring colleges/ institute.
6. The full marks for the Project work/ Dissertation is 100 (6 Credits) and pass marks is 45. The evaluation of the Project work/ Dissertation maybe made out of 100 marks in the end Semester examination. No midterm evaluation is required.
7. The evaluation will be made based on the following points.

Activity	Marks allotted
Continuous Evaluation/students regularity	20
Timely completion of work	10
Presentation of the report	20
Content of the report	30
Viva-voce	20

Generic Elective (GE) Course for Honours
CBCS-based U.G. Course in Geography

Course Name: Physical Geography
Paper Code: GGeg-1
Total Credits: 6 (4+2)

Course Objectives

- This paper introduces students to the field of Physical Geography and its specificities inter-relationship with other branches of Physical and Social Sciences.
- It seeks to understand the Origin of the Earth and the dynamic geomorphic processes responsible for development of major landforms of varied types and nature.
- To make the students learn about the origin and types of rocks as well as soil formation and types.

Course outcomes

- After gaining knowledge based on the contents embodied in this paper, the students will be able to realize the importance of the nature and scope of Physical Geography.
- The paper be very useful for students preparing for UGC NET-JRF / SLET exam and other competitive exams including civil services

Physical Geography	Part A (Theory)	Credits 4
1. Physical geography- nature and scope: Branches of physical Geography: relation of Geography with physical Science (Geology, Meteorology & Hydrology) and Social Sciences (Economics, Political Science, Anthropology and History) 2. Origin of Solar System and earth (Tidal Hypothesis of Jeans and Jeffrey's, Gaseous Theory by Kant, Nebular Hypothesis of Laplace and Big Bang theory) 3. Factors affecting earth's crust (Endogenetic and Exogenetic forces); Major landforms (Types and classification of Mountains, Plateau and Plains) 4. Origin and types of rocks; Classification of igneous, sedimentary and Metamorphic rocks 5. Soils (Classification, process of Soil formation and soil types); soil profile		

Physical Geography	Part B (Practical)	Credits 2
1. Relief representation from the topographical sheet (V-shaped valley, U-shaped valley, waterfall, cliff, Cirque, Ox-bow lake). 2. Rainfall-Temperature Graph, Climograph and Hythergraph. 3. Plain Table Survey 4. Viva voce and practical notebook.		

Reading List:

1. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company, New Delhi.
2. Bennett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd
3. Huggett, R.J (2003): Fundamentals of Geomorphology, Routledge, London.
4. Monkhouse, F.J. (1979): Physical Geography, Methuen, London
5. Negi, B.S (2000): Physical Geography, Kedar Nath Ram Nath, Meerut

6. Singh, S. (2003): Physical Geography, Physical Geography, Prayag Pustak Bhawan, Allahabad.
7. Sharma, Y.K. (2007): Physical Geography, Lakshmi Narain Agarwal, Agra
8. Strahler, A.N. and Strahler, A.M (1992): Modern Physical Geography, John Wiley and Sons, New York.
9. Thornbury, W.D. (1960): Principles of Geomorphology, John Wiley and Sons, New York.
10. Wooldridge, S.H. and Morgan, R.S. (1959): The Physical basis of Geography- An Outline of Geomorphology

Course Name: Human Geography

Paper Code: GGeg-2

Total Credits: 6 (4+2)

Course objectives

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

Course outcomes

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

Human Geography	Part A (Theory)	Credits 4
1. Meaning, nature and scope of Human Geography; Development and branches of Human Geography.	2. Space and Society; Race; Religion and Language	3. Population: Population Growth and demographic transition theory; Factors influencing distribution of population; density of population.

Human Geography	Part B (Practical)	Credits 2
1. Diagrammatic data presentation: line, bar and circle.	2. Representation of population data by point (Dot and Proportionate Circles).	3. Graphical representation and analysis- Age-Sex pyramids.

Reading List

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur

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

Course Name: Geography of India

Paper Code: GGeg-3

Total Credits: 6 (4+2)

Course objectives

- This paper is a core paper that intends to introduce students to the India as a geographical entity.
- It seeks to develop new insights among students on the relevance of geographical studies and India's contemporary geographical issues.

Course outcomes

- The paper will be useful for students in developing perspectives on Indian geography and its systematic study.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services

Geography of India	Part A (Theory)	Credits 4
1. Physical: Physiographic Divisions, soil and vegetation, climate 2. Population: Factors influencing spatial distribution; density and growth. 3. Social: Distribution of population by religion and language. 4. Economic: Mineral and power resources-distribution and utilization of iron ore, coal, petroleum; Agricultural- production and distribution of rice and wheat. 5. Transport: Roads, railways and air transport.		

Geography of India	Part B (Practical)	Credits 2
1. Monthly temperature and rainfall graphs of five selected stations from different physiographic regions of India. 2. Representation of geographical data using Ergograph. 3. Representation of population data using age sex pyramid. 4. Viva voce and practical note book.		

Reading List

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography— An International Perspective. Vol. 3— Indian Perspective.
4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India.

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

Course Name: Environmental Geography

Paper Code: GGeg-4

Total Credits: 6 (4+2)

Course objectives

- This paper 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.
- The paper will enable the students to understand the various facets of environment, its degradation as well as management.
- To provide understanding and awareness of Environmental issues at Global and regional level

Course outcomes

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

Environmental Geography	Part A (Theory)	Credits 4
1. Environmental Geography – Concept, Scope and Significance		
2. Human-Environment Relationships – Historical Progression, Adaptation in different Biomes.		
3. Eco-system: concept, types and components, structure and functions; Ecology– Concept and principles.		
4. Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, Bio-Depletion		
5. Environmental Programmes and Policies – Global, National and Local		

Environmental Geography	Part B (Practical)	Credits 2
1. Quality assessment of soil (Organic matter and NPK) or water (pH and Total Dissolved Solids) using field kit. (OR) 2. Project on environmental problems of India/ North East India.		

Reading List

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham W.P. and Cunningham M.A., 2004: Principles of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G.T., 2004: Environmental Science: Working with the Earth, Thomson BrooksCole, Singapore.
6. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
8. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
9. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan. 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. Singh, Savindra 2001. Paryavaran Bhugol, Prayag Pustak Bhawan, Allahabad. (in Hindi).

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

(Course effective from the academic year 2022)



**Department of Geography
NAGALAND UNIVERSITY
LUMAMI, NAGALAND**

Syllabus for B.A./B.Sc. (General) Geography Programme
Choice Based Credit System (CBCS)
(Semester wise paper code and name of the courses)

Discipline Specific Core (DSC) Course

SEMESTER I

CGegG-1: Physical Geography (Theory and Practical)

SEMESTER II

CGegG-2: Human Geography (Theory and Practical)

SEMESTER III

CGegG-3: Geography of India (Theory and Practical)

SEMESTER IV

CGegG-4: Environmental Geography (Theory and Practical)

Skill Enhancement Course (SEC)

SEMESTER III

SECGegG-1: Research Methods (Theory and Practical)

SEMESTER IV

SECGegG-2: Map Projection (Theory and Practical)

SEMESTER V

SECGegG-3: Surveying techniques in Geography (Theory and Practical)

SEMESTER VI

SECGegG-4: Field Survey Report (Practical)

Discipline Specific Elective (DSE) Course

SEMESTER V

DSEGegG-1: Northeast India with special focus on Nagaland (Theory and Practical)

SEMESTER VI

DSEGegG-2: Resource Geography (Theory and Practical)

Generic Elective (GE) Course

SEMESTER V

GGegG-5: Climate Change (Theory and Practical)

SEMESTER VI

GGegG-6: Sustainable Development (Theory and Practical)

Undergraduate B.Sc. General Programme					Undergraduate B.A. General Programme			
Semester	Paper	Code	Paper Name	Credit	Paper	Code	Paper Name	Credit
First	DSC 1A	<u>CGegG-1</u>	Physical Geography	4+2=6	DSC 1A	<u>CGegG-1</u>	Physical Geography	4+2=6
	DSC 2A		Subject -Y	4+2=6	DSC 2A		Subject -Y	4+2=6
	DSC 3A		Subject -Z	4+2=6	English -1		English -1	4+2=6
	AECC 1		English /MIL	2	AECC 1		English /MIL	2
Second	DSC 1B	<u>CGegG-2</u>	Human Geography	4+2=6	DSC 1B	<u>CGegG-2</u>	Human Geography	4+2=6
	DSC 2B		Subject -Y	4+2=6	DSC 2B		Subject -Y	4+2=6
	DSC 3B		Subject -Z	4+2=6	MIL -1		MIL -1	4+2=6
	AECC 2		EVS	2	AECC 2		EVS	2
Third	DSC 1C	<u>CGegG-3</u>	Geography of India	4+2=6	DSC 1C	<u>CGegG-3</u>	Geography of India	4+2=6
	DSC 2C		Subject -Y	4+2=6	DSC 2C		Subject -Y	4+2=6
	DSC 3C		Subject -Z	4+2=6	English -2		English -2	4+2=6
	SEC 1	<u>SECGegG-1</u>	Research Methods	2	SEC 1	<u>SECGegG-1</u>	Research Methods	2

Undergraduate B.Sc. General Programme					Undergraduate B.A. General Programme				
Semester	Paper	Code	Paper Name	Credit	Paper	Code	Paper Name	Credit	
Fourth	DSC 1D	<u>CGegG-4</u>	Environmental Geography	4+2=6	DSC 1D	<u>CGegG-4</u>	Environmental Geography	4+2=6	
	DSC 2D		Subject -Y	4+2=6	DSC 2D		Subject -Y	4+2=6	
	DSC 3D		Subject -Z	4+2=6	MIL -2		MIL -2	4+2=6	
	SEC 2	<u>SECGegG-2</u>	Map Projection	2	SEC 2	<u>SECGegG-2</u>	Map Projection	2	
Fifth	DSE 1A	<u>DSEGegG-1</u>	Northeast India with Special Focus on Nagaland	4+2=6	DSE 1A	<u>DSEGegG-1</u>	Northeast India with Special Focus on Nagaland	4+2=6	
	DSE 2A		Subject -Y	4+2=6	DSE 2A		Subject -Y	4+2=6	
	DSE 3A		Subject -Z	4+2=6	GE 1	<u>GGegG-1</u>	Climate Change	4+2=6	
	SEC 3	<u>SECGegG-3</u>	Surveying techniques in Geography	2	SEC 3	<u>SECGegG-3</u>	Surveying techniques in Geography	2	
Sixth	DSE 1B	<u>DSEGegG-2</u>	Resource Geography	4+2=6	DSE 1B	<u>DSEGegG-2</u>	Resource Geography	4+2=6	
	DSE 2B		Subject -Y	4+2=6	DSE 2B		Subject -Y	4+2=6	
	DSE 3B		Subject -Z	4+2=6	GE 2	<u>GGegG-2</u>	Sustainable Development	4+2=6	
	SEC 4	<u>SECGegG-4</u>	Field Survey Report	2	SEC 4	<u>SECGegG-4</u>	Field Survey Report	2	

Discipline Specific Core (DSC) Course (General) CBCS-based U.G. Course in Geography

Course Name: Physical Geography

Paper Code: CGegG-1

Total Credits: 6 (4+2)

Course objectives

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

Course outcomes

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

Physical Geography	Part A (Theory)	Credits 4
1. Physical geography- nature and scope: Branches of physical Geography: relation of Geography with physical Science (Geology, Meteorology & Hydrology) and Social Sciences (Economics, Political Science, Anthropology and History) 2. Origin of Solar System and earth (Tidal Hypothesis of Jeans and Jeffrey's, Gaseous Theory by Kant, Nebular Hypothesis of Laplace and Big Bang theory) 3. Factors affecting earth's crust (Endogenetic and Exogenetic forces); Major landforms (Types and classification of Mountains, Plateau and Plains) 4. Origin and types of rocks; Classification of igneous, sedimentary and Metamorphic rocks 5. Soils (Classification, process of Soil formation and soil types); soil profile.		

Physical Geography	Part B (Practical)	Credits 2
1. Relief representation from the topographical sheet (V-shaped valley, U-shaped valley, waterfall, cliff, Cirque, Ox-bow lake). 2. Rainfall-Temperature Graph, Climograph and Hythergraph. 3. Plain Table Survey. 4. Viva voce and practical notebook.		

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.

Course Name: Human Geography

Paper Code: CGegG-2

Total Credits: 6 (4 + 2)

Course objectives:

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

Course outcomes:

- The paper will be useful for students in developing ideas on human-environment issues that geographers usually address in the anthropocene.
- The paper will be useful for students preparing for various competitive examinations including the civil services.

Human Geography	Part A (Theory)	Credits 4
<ol style="list-style-type: none"> 1. Meaning, nature and scope of Human Geography; Development and branches of Human Geography. 2. Space and Society; Race; Religion and Language 3. Population: Population Growth and demographic transition theory; Factors influencing distribution of population; density of population. 4. Migration: Factors influencing migration; types of migration; consequences of migration. 5. Settlements: Geographical factors influencing human settlement. Origin and growth of Rural and Urban settlements. Rural Settlements: Types and pattern; Urban Settlements: Morphology and functional classification. 		

Human Geography	Part B (Practical)	Credits 2
<ol style="list-style-type: none"> 1. Diagrammatic data presentation: line, bar and circle. 2. Representation of population data by point (Dot and Proportionate Circles). 3. Graphical representation and analysis- Age-Sex pyramids. 4. Viva voce and practical notebook. 		

Reading List

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur

3. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
4. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
5. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.

Course Name: Geography of India

Paper Code: CGegG-3

Total Credits: 6 (4 + 2)

Course objectives

- This paper 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.
- To help 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.

Geography of India	Part A (Theory)	Credits 4
1. Physical: Physiographic Divisions, soil and vegetation, climate		
2. Population: Factors influencing spatial distribution; density and growth.		
3. Social: Distribution of population by religion and language.		
4. Economic: Mineral and power resources-distribution and utilisation of iron ore, coal, petroleum; Agricultural- production and distribution of rice and wheat.		
5. Transport: Roads, railways and air transport.		

Geography of India	Part B (Practical)	Credits 2
1. Monthly temperature and rainfall graphs of five selected stations from different physiographic regions of India.		
2. Representation of geographical data using Ergograph.		
3. Representation of population data using age sex pyramid.		

Reading List

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
3. Mandal R.B. (ed.), 1990: Patterns of Regional Geography- An International Perspective. Vol. 3 –Indian Perspective.
4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India.
5. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.

7. Singh, Jagdish 2003: India- A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., 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. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

Course Name: Environmental Geography

Paper Code: CGegG-4

Total Credits: 6 (4 + 2)

Course objectives

- This paper 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.
- The paper will enable the students to understand the various facets of environment, its degradation as well as management.
- To provide understanding and awareness of Environmental issues at Global and regional level

Course outcomes

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

Environmental Geography	Part A (Theory)	Credits 4
1. Environmental Geography – Concept, Scope and Significance		
2. Human-Environment Relationships– Historical Progression, Adaptation in different Biomes.		
3. Eco-system: concept, types and components, structure and functions; Ecology– Concept and principles.		
4. Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, Bio-Depletion.		
5. Environmental Programmes and Policies – Global, National and Local.		

Environmental Geography	Part B (Practical)	Credits 2
1. Quality assessment of soil (Organic matter and NPK) or water (pH and Total Dissolved Solids) using field kit.		
OR		
2. Project on environmental problems of India/ North East India.		

Reading List

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: Principles of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.

3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson Brooks Cole, 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, Prayag Pustak Bhawan. 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..

Skill Enhancement Course (SEC) **CBCS-based U.G. Course in Geography**

Course Name: Research Methods (Practical)
Paper Code: SEC GegG-1
Total Credits: 2

Course objectives

- The paper will enable students to understand how to approach a research problem and to formulate research objectives and research questions in proper perspective. In addition, knowledge of formulating of hypothesis and testing, framing of questionnaires, understand both qualitative and quantitative techniques of data collection and analyze the same.
- Understand the basics and utility of review of literature and preparation of research report.

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 which doing quality research

Research Methods (Practical)	Credits 2
1. Data Collection: Type and Sources of Data; Methods of Collection; Input and Editing	2
2. Data Analysis: Qualitative Data Analysis; Quantitative Data Analysis.	2
3. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract Preparation of a Research Report.	2
4. Viva voce and practical notebook.	2

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. Misra, R.P. (2002) Research Methodology, Concept Publications, New Delhi.
5. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
6. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
7. 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. 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. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

Course Name: Map Projection (Practical)

Paper Code: SEC GegG-2

Total Credits: 2

Course objectives

- To understand the concepts of map projection.
- To understand the classification and properties of map projection.
- To develop graphical construction of different projections.

Course outcomes

- Thorough understanding of the concepts and construction of map projections.
- The students learn about the operational process that involves dimensional transformation of the curved surface of the earth on a flat plain.

Map Projections (Practical)

Credits 2

1. Map projection: Gall's and Mercator's with outline maps drawn
2. Map projection: Molleweid's and Sinusoidal with outline maps drawn
3. Viva voce and practical notebook.

Reading List

1. Kanetker, T.P. and Kulkarni, S.V. (1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
2. Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams, Methuen, London.
3. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London.
4. Raiz, E. (1962): Principles of Cartography, McGraw Hill, New York.

5. Robinson, Arthur et al., (1978): Elements of Cartography, John Wiley and Sons, New York.
6. Sarkar, A.K. (1997): Practical Geography: A Systematic Approach, Orient Longman, Kolkata.
7. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
8. Steers, J. A. (1965): An Introduction to the Study of Map Projection, University of London Press, London.
9. Talukdar, S. (2008): Introduction to Map Projection, EBH Publishers, Guwahati

Course Name: Surveying techniques in Geography

Paper Code: SECGegG-3

Total credits: 2

Course objectives

- To understand the fundamental base of art and science of map making.
- To study the types of survey instruments; methods and principles of survey.
- To understand the process of determining the positions of points on a horizontal plain.

Course outcomes

- Thorough understanding of the different types of surveys.
- General understanding of preparation procedures of different types of plan and map.
- The paper will help student's experience geographical reality and have deeper understanding of the subject.

Surveying Techniques in Geography

Credits 2

1. Basic principles of surveying.
2. Surveying: Chain and tape, Plane Table, Prismatic Compass (Open Traverse and Closed Traverse).
3. Viva voce and practical note book.

Reading List

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

Course Name: Field Survey Report (Practical)
Paper Code: SECGeG-4
Total credits: 2

Course objectives:

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

Course outcomes

- 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.

Field Survey Report

Credits 2

1. Field Tools and Techniques– Questionnaires; Interview; Space Survey (Transects and Quadrants, Constructing a Sketch).
2. Field study and preparation of field report- Aims and Objectives, Methodology, Analysis, Interpretation.

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during field work.
2. The duration of the field work should not exceed 10 days.
3. The word count of the report should be about 4000 to 6000 excluding figures, tables, photographs, maps, references and appendices.
4. One copy of the report on A4 size paper should be submitted in soft binding.

Reading List

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage
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.

Discipline Specific Elective (DSE) Course

CBCS-based U.G. Course in Geography

Course Name: North East India with Special Focus on Nagaland

Paper Code: DSEGegG-1

Total Credits: 6 (4+2)

Course objectives

- This paper that intends to introduce students to North East India as a geographical entity.
- To understand the geographical setting of North East India and Nagaland and to analyze the regions potentially for sustainable development

Course outcomes

- The paper will be useful for students in developing perspectives on geography of North East India and its systematic study.
- The paper will be useful for students preparing for UGC NET/SLET exams and other competitive exams including the civil services.

North East India with Special Focus on Nagaland Part A (Theory) Credits 4

1. North East India: Physical characteristics: Physiography, Drainage, Climate, Soil and Natural vegetation
2. Population of North East India: Growth, Distribution and Density, Age- Sex Composition, Rural-Urban Composition
3. Economy- Classification and types, Problems and Prospects (Agriculture, Industries, transport and Communication)
4. Nagaland: Physiography, Climate and Natural Vegetation; Biodiversity and its Conservation issues.
5. Nagaland: Demographic characteristics- Population Growth, Distribution and Density, Age Sex Composition.

North East India with Special Focus on Nagaland Part B (Practical) Credits 2

1. Trend of population growth and growth rates in N.E. India/Nagaland since 1901 using Census of India data (Source: censusindia.gov.in)
2. Spatial variation in the patterns of religious composition of population in North East India using pie-graph.
3. Choropleth mapping to show density of population in Nagaland.
4. Viva voce and practical notebook.

Reading List

1. Taher, M. and Ahmed, P. (Revised Edition, 2014): Geography of North East India, Mani Manik Prakash, Guwahati
2. Bhattacharyya, N.N. (2005): North East India: A Systematic Geography, Rajesh Pub. New Delhi.
3. Gopal Krishnan, R. Geography of North East India.
4. Gopal Krishnan, R. (1991): North East India: Land, People and Economy, Vikash Publishing House, New Delhi.
5. Sebu, Sonyhulo (2013): Geography of Nagaland, Spectrum Publications Guwahati, Delhi.

6. Singh, S. (1994): Agricultural Development in North East India: A Regional Analysis, Kaushal Publications, Shillong.

Course Name: Resource Geography

Paper Code: DSEGegG-2

Total Credits: 6 (4+2)

Course objectives

- This theory course basically deals with concept of resource and its classification, and the distribution, utilization and management of land, water, forest and energy resources.
- It also focuses on the natural resource base and its problems of conservation and management.
- It also provides basic idea about sustainable development of resources.

Course outcomes

- Understanding the basic concept of resource and its various types and their utilities.
- Acquiring basic information about potentials and management of resources like land, water, forest and power in global context.
- Understanding the prevailing natural resource potentials and problems of management.

Resource Geography	Part A (Theory)	Credits 4
1. Definition, Nature and Scope of Resource Geography: Types of resources .		
2. Distribution, Utilization, Problems and Management of Mineral Resources (Coal, Petroleum) and Water Resources.		
3. Distribution, Utilization, Problems and Management of Forests and Energy Resources.		
4. Issues Related to Human resources: Social and Demographic issues; Carrying capacity of the land.		
5. Conservation of natural resources and Sustainable Resource Development.		

Resource Geography	Part B (Practical)	Credits 2
1. Satellite imagery interpretation- Forest cover, Water bodies.		
2. Satellite imagery interpretation- Settlements.		
3. Representation of Human Development Index in India using choropleth method.		
4. Viva voce and practical notebook.		

Reading List

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: Exploitation, Conservation, 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.

Generic Elective (GE) Course
CBCS-based U.G. Course in Geography

Course Name: Climate Change

Paper Code: GGegG-1

Total Credits: 6 (4+2)

Course objectives

- To make the students understand that climate change is a continuous process in both global and regional environments.
- To impart information and knowledge about the impacts of climate change and the different modes of human adaptation to climate change.
- To educate the students that climate change is a global issue and its management needs global concern and co-operation.

Course outcomes

- The students will acquire knowledge and skill to detect the noticeable impacts of climate change in their vicinity.
- The students may join various govt. and non-govt. agencies dealing with climate change study and mitigation.
- The students will be able to know the extent to which the people and their economic activities are vulnerable to climatic changes and may suggest some adaptation strategies to the affected people, especially in the agricultural sector

Climate Change	Part A (Theory)	Credits 4
1. Science of Climate Change: Understanding Climate Change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC.		
2. Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability.		
3. Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health.		
4. Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia.		
5. National Action Plan on Climate Change; Local Institutions (Urban Local Bodies, Panchayats)		

Climate Change	Part B (Practical)	Credits 2
<ol style="list-style-type: none"> 1. Project report based on climate change field based case studies among any one of the following: <ol style="list-style-type: none"> a) Local level b) National level 2. Practical Record <ol style="list-style-type: none"> a) Each student will prepare an individual report based on primary and secondary data collected during field work. b) The word count of the report should be about 4000 to 6000 excluding figures, tables, photographs, maps, references and appendices. c) One typed copy of the report on A 4 size paper should be submitted 		

Reading List

1. IPCC. (2007) Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
2. IPCC (2014) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, USA.
3. IPCC (2014) Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, USA.
4. Palutikof, J.P., van der Linden, P. J. and Hanson, C.E. (eds.), Cambridge University Press, Cambridge, UK.
5. OECD. (2008) Climate Change Mitigation: What Do we Do? Organization and Economic Cooperation and Development.
6. UNEP. (2007) Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.
7. 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
8. Sen Roy, S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH Pub., New Delhi.

Course Name: Sustainable Development

Paper Code: GGegG-2

Total Credits: 6 (4 + 2)

Course objectives

- The paper highlights on the basics of sustainability including the millennium development goals.
- It also focuses on sustainable and inclusive development along with environmental management. Sustainable development policies and programmes including the principles of good governance are also discussed in the paper.

Course outcomes

- Thorough understanding about the concept of sustainability, sustainable development and inclusive development;
- Knowledge of sustainable development policies and programmes;
- Deeper knowledge of the national environmental policy, and the principles of good governance.

Sustainable Development	Part A (Theory)	Credits 4
1. Sustainable Development: Definition, Components, Limitations and Historical Background. 2. The Millennium Development Goals: National Strategies and International Experiences. 3. Sustainable Regional Development: Need and examples from different Ecosystems. 4. Inclusive Development: Education, Health; Climate Change: The role of higher education in sustainable development; The human right to health; Poverty and disease. 5. Sustainable Development Policies and Programmes.		

Sustainable Development	Part B (Practical)	Credits 2
1. Project report based on any one field based case study among the following: a) Health issues in any local village b) Education status in any local village 2. Practical Record a) Each student will prepare an individual report based on primary and secondary data collected during field work. b) The word count of the report should be about 4000 to 6000 excluding figures, tables, photographs, maps, references and appendices. c) One typed copy of the report on A 4 size paper should be submitted.		

Reading List

1. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) Just Sustainable Development: Development in an Unequal World. London: Earthscan. (Introduction and conclusion.).
2. 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.
3. Baker, Susan (2006) Sustainable Development. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, “The concept of sustainable development”).
4. Brosius, Peter (1997) “Endangered forest, endangered people: Environmentalist representations of indigenous knowledge”, *Human Ecology* 25: 47-69.
5. Lohman, Larry (2003) “Re-imagining the population debate”. *Corner House Briefing* 28.
6. Martínez-Alier, Joan et al (2010) “Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm” *Ecological Economics* 69: 1741-1747.
7. Merchant, Carolyn (Ed.) (1994) Ecology. Atlantic Highlands, N.J: Humanities Press. (Introduction, pp 1-25.)

8. Osorio, Leonardo et al (2005) “Debates on sustainable development: towards a holistic view of reality”. *Environment, Development and Sustainability* 7: 501-518.
9. Robbins, Paul (2004) *Political Ecology: A Critical Introduction*. Blackwell Publishing.
10. 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.