Revised
SYLLABUS FOR
Bachelor of Science (Honours)

GEOGRAPHY

THREE YEAR DEGREE COURSE
SEMESTER SYSTEM

(Under New UGC CBCS Guidelines)

COURSE STRUCTURE

SEMESTER	COURSE	COURSE NAME	COURSE CODE	CREDIT
I	Core 1	Physical Geography (Theory)	GGC 1.11	4
		Thematic Cartography I (Practical)	GGC 1.12	2
	Core 2	Geomorphology (Theory)	GGC 1.21	4
		Cartographic Techniques I (Practical)	GGC 1.22	2
II	Core 3	Climatology (Theory)	GGC 2.11	4
		Graphical Representation of Weather Data (Practical)	GGC 2.12	2
	Core 4	Human Geography (Theory)	GGC 2.21	4
		General Cartography I (Practical)	GGC 2.22	2
III	Core 5	Economic Geography (Theory)	GGC 3.11	4
		Socio-Economic Survey (Practical)	GGC 3.12	2
	Core 6	Resource Geography (Theory)	GGC 3.21	4
		Map Projection I (Practical)	GGC 3.22	2
	Core 7	Hydrology and Oceanography (Theory)	GGC 3.31	4
		Map Projection II (Practical)	GGC 3.32	2
	Skill Enhancement Course 1	Remote Sensing (Practical) OR Advanced Spatial Statistical Techniques (Practical)	GGS 3.12(a) GGS 3.12(b)	2
IV	Core 8	Environmental Geography and Disaster Management (Theory)	GGC 4.11	4
		Environmental and Disaster Based Project Work (Practical)	GGC 4.12	2
	Core 9	Settlement Geography (Theory)	GGC 4.21	4
		Survey (Practical)	GGC 4.22	2
	Core 10	Geography of India (Theory)	GGC 4.31	4
		Cartographic Technique II (Practical)	GGC 4.32	2
	Skill Enhancement Course 2	Geographical Information System (Practical) or Research Methods (Practical)	GGS 4.12(a) GGS 4.12(b)	2
V	Core 11	Regional Geography of Northeast India (Theory)	GGC 5.11	4
		Data Based on Northeast India (Practical)	GGC 5.12	2
	Core 12	Regional Planning and Development (Theory)	GGC 5.21	4
		Filed Work	GGC 5.22	2
	Discipline Specific Elective 1	Demography (Theory) OR Geography of Health and Wellbeing (Theory)	GGD 5.11(a) GGD 5.11(b)	4
		Cartographic Technique I (Practical)	GGD 5.12	2
	Discipline Specific Elective 2	Social Geography (Theory) OR Geography of Tourism (Theory)	GGD 5.21(a) GGD 5.21(b)	4
		Presentation (Practical)	GGD 5.22	2
VI	Core 13	Advanced Geomorphology (Theory)	GGC 6.11	4
		Cartographic Technique III (Practical)	GGC 6.12	2

	Core 14	Geography of Nagaland (Theory)	GGC 6.21	4
		Project: Field Study and Report (Practical)	GGC 6.22	2
	Discipline Specific Elective 3	Agriculture Geography (Theory) OR Urban Geography (Theory)	GGD 6.11(a) GGD 6.11(b)	4
		Graphical Representation of Data (Practical)	GGD 6.12	2
	Discipline Specific Elective 4	Political Geography (Theory) Cartographic Technique II (Practical)	GGD 6.21 GGD 6.22	4 2
		OR Dissertation	 GGD 6.23	 6

SEMESTER – I

CORE 1 (GGC 1.11)
PHYSICAL GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

Objective: *The objective of this paper is to understand the origin of the Earth and its various landforms. The inter-relation of various branches of geography with other branches of natural and social science.*

UNIT I 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).

UNIT II Origin of Solar System and Earth (Tidal Hypothesis of Jeans and Jeffreys; Gaseous Theory by Kant; Nebular Hypothesis of Laplace and Big-Bang Theory).

UNIT III Forces affecting Earth's crust (endogenetic and exogenetic forces); Major landforms (Types and classification of Mountains, Plateau and Plains)

UNIT IV Origin and types of rocks; classification of igneous, sedimentary and metamorphic rocks

UNIT V Soils (classification, process of soil formation and soil types)

Recommended Books and References:

1. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company, New Delhi.
2. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd.
3. Hugget, 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, Prayag Pustak Bhawan, Allahabad. (2007): Physical Geography, Lakshmi Narain Agarwal, Agra.
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 Willey & Sons, New York.
10. Wooldrige, S.H and Morgan, R.S. (1959): The Physical Basis of Geography –An Outline of Geomorphology,

CORE 1 (GGC 1.12)
THEMATIC CARTOGRAPHY I

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Concept of map and types of maps.

UNIT II Types of scale; preparation of scale-simple, comparative and diagonal.

UNIT III Enlargement and Reduction of map by graphical method; combination of maps of different scales.

UNIT IV Viva voce and Practical Notebook.

Recommended Books and References:

1. Binch, T.W. (1968**): Maps: Topographical and Statistica**l, Clarendon Press, Oxford.
2. Khan, Md. Z.A. (1998): **Text Book of Practical Geography**, Concept Publishing, New Delhi.
3. Lownsberg, J.F. and Aldrich, F.T. (1979): **Introduction to Geographical Methods and Techniques**, Charles Marlin, Columbus.
4. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi.
5. Mohammad, N. (2008): **Practical Work in Geography**, Sunflower Publishers, New Delhi.
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. Singh, R.L. and Singh, Rana P.B. (1993): **Elements of Practical Geography**, Kalyani Publishers, New Delhi.

CORE 2 (GGC 1.21)
GEOMORPHOLOGY

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To acquaint the students with the growth and development in geomorphology, its place in physical geography and theories of formation of earth.*

UNIT I Geomorphology (Nature and scope); place of Geomorphology in Physical Geography

UNIT II Internal structure of Earth with special reference to seismological evidence

UNIT III Earth movements- Mountain building process; Theories regarding origin of mountains- continental drift theory, Isostasy and plate- tectonics

UNIT IV Volcano (definition, classification, landforms produced) and Earthquakes (definition, causes, landforms produced)

UNIT V Land forms- Works of river, wind, glacial, under- ground water.

Recommended Books and References:

1. Bryant, H. Richard (2001): **Physical Geography Made Simple,** Rupa and Company, New Delhi.
2. Hugget, R.J. (2003): **Fundamentals of Geomorphology**, Routledge, London.
3. Monkhouse, F.J. (1979): **Physical Geography**, Methuen, London.
4. Singh, S. (2003): **Physical Geography,** Prayag Pustak Bhawan, Allahabad. (2007): Physical Geography, Lakshmi Narain Agarwal, Agra.
5. Sharma, Y.K. (2007): **Physical Geography**, Lakshmi Narain Agarwal, Agra.

6. Strahler, A.N. and Strahler, A.m. (1992): **Modern Physical Geography**, John Wiley and Sons, New York.
7. Thornbury, W.D. (1960): **Principles of Geomorphology**, John Willey & Sons, New York.
8. Wooldrige, S.H and Morgan, R.S. (1959): **The Physical Basis of Geography** –An Outline of Geomorphology, Longman Green & Co., London.

CORE 2 (GGC 1.22)
CARTOGRAPHIC TECHNIQUE I

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Interpretation of toposheet- a) Physiography b) Settlement c) Transport d) Land-use e) Vegetation

UNIT II Representation by contour and their profile- Plateau, Cliff, Cirque, Ria coast, Fiord coast, River terrace

UNIT III Relief and Slope Analysis- Serial, Superimposed, Projected and Composite profiles

UNIT IV Viva voce and Practical Notebook.

Recommended Books and References:

1. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi.
2. Sarkar, A.K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata.
3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
4. Singh, R.L. and Singh, Rana P.B. (1993): **Elements of Practical Geography**, Kalyani Publishers, New Delhi.

SEMESTER – II

CORE 3 (GGC 2.11)
CLIMATOLOGY

Theory Credit: 4 *Contact Hours: 60*

Objective: *This paper encompasses very important branch of geography i.e. Climatology. It is to enable the students to understand the importance of various atmospheric factors in controlling the climate***.**

UNIT I Definition and significance of climatology; elements of weather and climate; Composition and structure of atmosphere.

UNIT II Insolation and heat balance (meaning and definition, distribution, factors affecting mechanism, solar radiation), Heat budget of the earth and the atmosphere.

UNIT III Temperature - Vertical and Horizontal distribution; Wind system - planetary, periodic and local winds, jet streams.

UNIT IV Air masses (meaning and characteristics); fronts (formation, classification and types); temperate and tropical cyclones.

UNIT V Major climatic types (Koppen's and Thornthwaite's classification of world climate); Global Climate change with special reference to role and response of man in climatic changes.

Recommended Books and References:

1. Chorley, R.J. (2001): Atmosphere, Weather and Climate. Methuen, London.
2. Crithfield, H.J. (2002): General Climatology. Prentice-Hall of India, New Delhi.
3. Finch, J.C. and Trewartha, G.T.: Elements of Weather and Climate. Prentice-Hall, London.
4. Lal, D.S. (1986): Climatology. Chaitanya Publications, Allahabad.
5. Oliver, J.E. and Hidore, J.J. (2003): Climatology: An Atmospheric Science, Pearson Education Private Ltd, Delhi.
6. Singh, S. (2005): Climatology. Prayag Pustak Bhawan, Allahabad.

CORE 3 (GGC 2.12)
GRAPHICAL REPRESENTATION OF WEATHER DATA

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Handling and use of weather instruments (Max-Min Thermometer, Hygrometer, Barometer, Rain Gauge, and Anemometer).

UNIT II Interpretation of weather maps published by Indian Meteorological Department.

UNIT III Representation of weather data- Temperature, rainfall and humidity data by line and bar graph. Construction and significance of Hythergraph and Climograph.

UNIT IV Viva voce and Practical Note book.

Recommended Books and References:

1. Monkhouse, F.J. and Wilkinson, F.J. (1985): **Maps and Diagrams,** Methuen, London.
2. Raiz, E. (1962): **Principles of Cartography**, McGraw Hill, New York.
3. Sarkar, A.K. (1997): **Practical Geography: A Systematic Approach**, Orient Longman, Kolkata.
4. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
5. Singh, R.L. and Singh, Rana P.B. (1993): **Elements of Practical Geography,** Kalyani Publishers, New Delhi.

CORE 4 (GGC 2.21)
HUMAN GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To acquaint the students with the nature of man- environment relationship and to make them understand the spatial distribution of different racial groups***.**

UNIT I Meaning, nature and scope of Human Geography; development and branches of Human geography.

UNIT II Man-environment dynamic relationships; determinism and possibilism.

UNIT III Evolution of man; classification of races; characteristics of races and their broad distribution; Human adaptation to environment (Eskimos, Bushman, Gujjars).

UNIT IV Physical, economic and social factors influencing spatial distribution of world population; growth, distribution and density of population; Migration- types and consequences.

UNIT V Settlement-Geographical factors influencing human settlement; rural and urban settlement; Types and patterns of rural settlement; Urban settlement- morphology and functional classification.

Recommended Books and References:

1. Beyman, E.F. (1995): **Human Geography** – Culture, Connections and Landscape, Prentice Hall, New Jersey.
2. Hazra, Jayati et al., (1977): **Dimensions of Human Geography**, Rawat Publications, Jaipur.
3. Hopkins, I. (1982): **An Introduction to Human Geography**, Widenfield and Nicolson, London.
4. Hussain, M. (1994): **Human Geography,** Rawat Publications, Jaipur.
5. James, R. (2010): **The Cultural Landscape – An Introduction to Human Geography**, Prentice Hall of India, New Delhi.
6. Leong Goh Cheng (2003): **Physical and Human Geography,** Oxford University Press, New Delhi.
7. Norton, W. (1995): **Human Geography,** Oxford University Press, New York.
8. Singh, L.R. (2005): **Fundamentals of Human Geography**, Sharda Pustak Bhawan, Allahabad.
9. Stoddard, R.H., Wishart, D.J. and and Blouet, B.W.: **Human Geography,** Prentice-Hall, Englewood Cliffs, New Jersey.

CORE 4 (GGC 2.22)
GENERAL CARTOGRAPHY I

Practical Credit: 2 *Teaching Hours: 30*

UNIT I The nature and scope of cartography, developments and trend, traditional versus modern cartography.

UNIT II Diagrammatic population data presentation by Line, bar and pie-diagram.

UNIT III Methods of constructing/ drawing maps -Representation of population data: Distribution, density and growth by dots, proportionate circles and spheres, Age-sex pyramid.

UNIT IV Viva voce and Practical Note book

Recommended Books and References:

1. Kanetker, T.P. and Kulkarni, S.V. (1967): **Surveying and Levelling,** (Vol I and II), V.G. Prakashan, Poona
2. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi.
3. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
4. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
5. Steers, J. A. (1965): **An Introduction to the Study of Map Projection**, University of London Press, London
6. Talukdar, S. (2008): **Introduction to Map Projection**, EBH Publishers, Guwahati.

SEMESTER – III

CORE 5 (GGC 3.11)
ECONOMIC GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

Objectives: *To acquaint the students with the dynamic aspect of economic geography, economic activities with various factors responsible for economic development.*

UNIT I Meaning, Scope and Approaches to the study of economic geography; World economic system.

UNIT II Economic activities: Primary, Secondary, Tertiary and Quaternary.

UNIT III Agriculture: Physical and socio- economic factors influencing agriculture; types of agriculture; food crops and cash crops, distribution and production of rice, wheat, sugarcane and tea.

UNIT IV Factors influencing industrial location, distribution and production of iron and steel (USA and China) and Cotton Textiles (U.K. and India); Industrial location- theory of Weber.

UNIT V International trade- Mode of transport (waterways, roadways, railways and airways); Service Industries- Financial services, Tourism and Knowledge services-ITES & IT services.

Recommended Books and References:

1. Boesch, H. (1964): **Geography of World Economy**, D. Van Nostnand Co., New York.
2. Bryson, J., Henry, N., Keeble, D. And Martin, R. (eds) (1999): **The Economic Geography Reader: Producing and Consuming Global Capitalism,** John Wiley and sons, Inc, New York.
3. Coe, N. (2007): **Economic Geography: A Contemporary Introduction,** Blackwell Publishers, Inc., Massachusetts.
4. Guha, J.S. and Chattoraj, P.R. (2002): **A new Approach to Economic Geography: A Study of Resources,** The World Press Private Limited, Kolkata.
5. Hannk, D.M. (1997): **Principles and Applications of Economic Geography: Economy, Policy, Environment**, John Wiley and Sons, Inc, New York.
6. Leong G.C. and Morgan, G. C.(1982): **Human and Economic Geography,** Oxford University Press, Singapore.
7. Miller, E. (1962): **Geography of Manufacturing Industries**, Prentice Hall, New York.
8. Pounds, N.J.G. (1970): **Introduction to Economic Geography**, John Murray, London.
9. Smith, D.M. (1971): **Industrial Location – An Economic Geographical Approach**, John Willey, New York.
10. Roy, P. K. (2005): **Economic Geography, A Study of Resources**, New Central Book Agency (P) Ltd, Kolkata.

CORE 5 (GGC 3.12)
SOCIO-ECONOMIC SURVEY

Practical Credit: 2 *Teaching Hours: 30*

Field work and Research Methodology (Socio-economic survey)

1. Field Work In Geographical Studies – Role, Value, Data and Ethics of Field-Work
2. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human/ Environmental.
3. Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch)

   -Each student will prepare an individual/ group report based on primary level and secondary data collected during field work
   - The duration of the field work should not exceed 10 days
   -Report should be about 15-20 pages excluding figures, tables, photographs, maps, references, and appendices

CORE 6 (GGC 3.21)
RESOURCE GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 90*

Objective: *To understand the concept of resources, prevalent issues related to environment, geographical pattern of resource utilization and the concept of sustainable development.*

UNIT I Concept of resources; Scope of resource geography; Types of resources.

UNIT II Human resources: Factors responsible for distribution of population, population pressure and resource utilization, human resource planning.

UNIT III Forest resources: Distribution, utilization and management. Water resources: utilization and management.

UNIT IV Energy resources: Conventional (Petroleum – distribution, production and utilization), Non-conventional (Solar energy – potential and utilization).

UNIT V Principles of conservation; Conservation of natural resources; Sustainable resource development and management.

Recommended Books and References:

1. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): **The Economic Geography Reader: Producing and Consuming Global Capitalism,** John Wiley and Sons, Inc, New York.
2. Coe, N. (2007): **Economic Geography: A Contemporary Introduction,** Blackwell Publishers, Inc., Massachusetts.
3. Guha, J.S. and Chattorji, P.R. (2002): **A New Approach to Economic Geography: A Study of Resources**, The World Press Private Limited, Kolkata.

4. Hanink, D.M. (1997): **Principles and Applications of Economic Geography: Economy, Policy, Environment,** John Wiley and Sons, Inc, New York.
5. Leong, G. C. and Morgan, G.C. (1982): **Human and Economic Geography**, Oxford University Press, Singapore.
6. Mackinnon, D. and Cumbers, A.(2007): **An Introduction to Economic Geography: Globalization, Uneven Development and Place**, Prentice Hall, New Jersey.
7. Parman, S.S. (2002): **Geography, Economics and Economic Geography**, ASD Publ., Pune.
8. Simmons, I.G. (1980): **The Ecology of Natural Resources**, Edward Arnold, London.
9. Simmons, I.G. (1991): **Earth, Air and Water: Resources and Environment in the 20th Century**, Edward Arnold, London.
10. Roy, P.K. (2005): **Economic Geography: A Study of Resources**, New Central Book Agency (P) Ltd, Kolkata.

CORE 6 (GGC 3.22)
MAP PROJECTION I

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Definition, classification, and uses of map projection.

UNIT II Map projection- Cylindrical (simple and equal area) with properties and uses

UNIT III Projections (Molleweid's and sinusoidal)

UNIT IV Viva voce and Practical note book

Recommended Books and References:

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.

CORE 7 (GGC 3.31)
HYDROLOGY AND OCEANOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

Objectives: *This paper on physical geography is structured into components of hydrology and oceanography as these are closely interrelated.*

UNIT I Meaning and scope of Hydrology; Hydrological Cycle; Elements of Hydrological Cycle- Precipitation–intensity and duration, evaporation, infiltration, surface runoff.

UNIT II Drainage basin characteristics; Human impact on hydrological system; water balance of drainage basin.

UNIT III Groundwater: Occurrence, Depletion of Ground water-causes and consequences; water management.

UNIT IV Meaning and scope of Oceanography; Surface configuration of the ocean floor, movement of ocean water, temperature and salinity of ocean water.

UNIT V Coral reefs (Origin and Types): Darwin's theory of Subsidence; Murray's theory of non-subsidence; Marine deposits.

Recommended Books and References:

1. Chorley, R.J. (2001): **Atmosphere, Weather and Climate**, Methuen, London.
2. Crithfield, H.J. (2002): **General Climatology,** Prentice-Hall of India, New Delhi.
3. Finch, J.C. and Trewartha, G.T.: **Elements of Weather and Climate,** Prentice-Hall, London.
4. Lal, D.S. (1986): **Climatology,** Chaitanya Publications, Allahabad.
5. Melik, A. (2008): **Causes of Climate Change**, DVS Publ., New Delhi.
6. Negi, B.S. (2002): **Climatology and Oceanography**, Kedar Nath Ram Nath, Meerut.
7. Oliver, J.E. and Hidore, J.J. (2003): **Climatology: An Atmospheric Science**, Pearson Education Private Ltd, Delhi.
8. Singh, S. (2005): **Climatology,** Prayag Pustak Bhawan, Allahabad

CORE 7 (GGC 3.32)
MAP PROJECTION II

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Map projection: Polar Zenithal (Stereographic, Orthographic) with an outline maps drawn.

UNIT II Cylindrical map projection (Gall's and Mercator's) with outline maps drawn.

UNIT III Average slope map and block diagram (from same area).

UNIT IV Viva voce and Practical note book.

Recommended Books and References:

1. Talukdar, S. (2008): **Introduction to Map Projection**, EBH Publishers, Guwahati
2. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
4. Steers, J. A. (1965): **An Introduction to the Study of Map Projection**, University of London Press, London
5. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi

SEMESTER - IV

CORE 8 (GGC 4.11)
ENVIRONMENTAL GEOGRAPHY AND DISASTER MANAGEMENT

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To identify and understand the emerging environmental issues at global and regional level, to create awareness and to acquaint the students with the knowledge of adaptation and management of the same.*

UNIT I Definition, concept and scope of Environmental Geography; Approach to Environmental management.

UNIT II Emerging environmental problems: population growth, agriculture, deforestation, science and technology.

UNIT III Disaster – Meaning, Concept and Types (flood, forest fires, drought, landslides).

UNIT IV Earthquake zoning in India- Himalayan region and NE India; Tropical Cyclones (Typhoons, Hurricanes and Tornadoes)

UNIT V Response to Disasters – Community, Non-Government Organisations, National and International.

Recommended Books and References:

1. Cantledge, B.(ed). (1992): **Monitoring the Environment,** Oxford University Press. Oxford.
2. Frank W.L., (1986): **The Violent Earth**, Croom Helm, London.
3. Kapur, A., (2010): **Vulnerable India: A Geographical Study of Disasters**, Safe Publication, New Delhi.
4. Newson, M.(1992): **Land, Water and Development,** Routledge, London.
5. Saxena, H.M. (2003): **Environmental Geography**, Rawat Publications, Jaipur and New Delhi.
6. Singh, R.B. (ed.) (2006): **Natural Hazards and Disaster Management Vulnerability and Mitigation**, Rawat Publications, New Delhi.
7. Singh, S.(1991): **Environmental Geography.** Prayag Pustak Bhawan, Allahabad.
8. Strahler, A.N. & A.H. Strahler, 1976: **Geography and Man's Environment**, John Willey, New York.
9. UN and WMO, (2002): **Living with Risk: A Global Review of Disaster Reduction Initiatives, International Strategy for Disaster Reduction (ISDR)**, WMO and UN Publication.

CORE 8 (GGC 4.12)
ENVIRONMENTAL AND DISASTER BASED PROJECT WORK

Practical Credit: 2 *Teaching Hours: 30*

Note: *The Project report based on any one case study among following environmental issues or disasters and one disaster preparedness plan of respective college or locality.*

1. Deforestation
2. Waste Management

3. Flood
4. Drought
5. Cyclone and Hailstorms
6. Earthquake
7. Landslide
8. Human induced disaster: Fire hazards, chemical, industrial accidents

Recommended Books and References:

1. Government of India (1997) Vulnerability atlas of India, New Delhi, Building Materials and 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 Disasters: Hydrological, Marine and Geological Disasters. Macmillan, Delhi.
4. Singh, R. B. (2005) Risk Assessment and Vulnerability analysis, IGNOU, New Delhi, Chapter 1,2 &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, Dordrechet.
8. Singh, Jagbir (2007) "Disaster Management future Challenges and Opportunities". I.K. International Pvt. Ltd., New Delhi (www.ikbooks.com).

CORE 9 (GGC 4.21)
SETTLEMENT GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

UNIT I Definition, nature, and scope of settlement geography; origin of settlements

UNIT II Rural Settlements: Types, patterns, functions, rural- urban continuum

UNIT III Urban settlement: origin and growth of urbanization, functional classification of town/cities

UNIT IV Salient features of human settlements in India, features and trend of urbanization.

UNIT V Social areas of the cities; classification of settlements- special reference to Northeast India

Recommended Books and References:

1. Hazra, Jayati et al., (1977): **Dimensions of Human Geography**, Rawat Publications, Jaipur.
2. Hopkins, I. (1982): **An Introduction to Human Geography**, Widenfield and Nicolson, London.
3. Hussain, M. (1994): **Human Geography,** Rawat Publications, Jaipur.
4. James, R. (2010): **The Cultural Landscape – An Introduction to Human Geography**, Prentice Hall of India, New Delhi.
5. Leong Goh Cheng (2003): **Physical and Human Geography,** Oxford University Press, New Delhi.
6. Norton, W. (1995): **Human Geography,** Oxford University Press, New York.

7. Singh, L.R. (2005): **Fundamentals of Human Geography**, Sharda Pustak Bhawan, Allahabad.
8. Stoddard, R.H., Wishart, D.J. and and Blouet, B.W.: **Human Geography,** Prentice-Hall, Englewood Cliffs, New Jersey.
9. Knox P. L. and Pinch S., 2006: **Urban Social Geography: *An Introduction***, Prentice Hall.
10. Ramachandran, R., 1992: **The Study of Urbanisation**, Oxford University Press, Delhi

CORE 9 (GGC 4.22)
SURVEY

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Importance of surveying in geography, instruments – handling and care of survey instruments.

UNIT II Survey- Chain and Tape survey (to plot an area within the college premises).

UNIT III Contouring by theodolite or dumpy level

UNIT IV Viva voce and Practical note book.

Recommended Books and References:

1. Talukdar, S. (2008): **Introduction to Map Projection**, EBH Publishers, Guwahati
2. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
4. Steers, J. A. (1965): **An Introduction to the Study of Map Projection**, University of London Press, London
5. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi

CORE 10 (GGC 4.31)
GEOGRAPHY OF INDIA

Theory Credit: 4 *Teaching Hours: 60*

Objectives: *Aims and presenting a comprehensive, integrated and empirically based profile of India so as to sensitize the students with development issues, policies and programs designed to regional development.*

UNIT I Locational significance; unity and diversity.; Physical environment-physiographic Characteristics (climate, soil and natural vegetation).

UNIT II Population characteristics: population growth distribution, density, structure and composition.

UNIT III Agriculture: agricultural development and Indian economy, modernization of Indian agriculture (Green Revolution), agro-climatic regions and special characteristics, Agricultural Trade (Wheat, Rice).

UNIT IV Transport: Roads and railways, air transport and water transport.

UNIT V Industry: Industrial development and Indian economy, distribution of major industries (cotton textile, petrochemicals and cement industries) and industrial policies.

Recommended Books and References:

1. Gautam, A. (2006): **Advanced Geography of India,** Sharda Pustak Bhawan, Allahabad.
2. Gopal Singh (1992): A Geography of India, Atma Ram & Sons, Lucknow.
3. Khullar, D.R. (2007): **A Comprehensive Geography,** Kalyani Publishers, New Delhi.
4. Kundee, A. (1992): **Urban Development Urban Research in India**, Khanna Pub.l, New Delhi.
5. Nag, P. and Gupta, S.S. (1992): **Geography of India**, Concept Publishing Company, New Delhi.
6. Premi, M.K. (2007**): Population of India**, NBT, New Delhi.
7. Singh, J. (2003): **India: A Comprehensive Systematic Geography**, Gyanodaya Prakashan, Gorakhpur.
8. Singh, R.L. (ed.) (1971): **India: A Regional Geography**, National Geographical Society of India, Varanasi.
9. Srinivasan, K. and Vlassoff, M. (2001): **Population and Development Nexus in India, Challenges for the new Millenium**, Tata Mc Graw Hill, New Delhi.
10. Tiwari, R.C. (2007): **Geography of India**, Prayag Pustak Bhawan, Allahabad.

CORE 10 (GGC 4.32)
CARTOGRAPHIC TECHNIQUE II

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Thematic mapping of India showing population, climate and resources.

UNIT II Projection: Conical projection with one and two standard parallel

UNIT III Prismatic Compass survey (closed and open traverse).

UNIT IV Practical notebook and viva voce.

Recommended Books and References:

1. Talukdar, S. (2008): **Introduction to Map Projection**, EBH Publishers, Guwahati
2. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
4. Steers, J. A. (1965): **An Introduction to the Study of Map Projection**, University of London Press, London
5. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi

SEMESTER – V

CORE 11 (GGC 5.11)
REGIONAL GEOGRAPHY OF NORTHEAST INDIA

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To understand the geographical settings of North-East India and analyze the regions potentiality for sustainable development.*

UNITI Locational significance; Geology; Physiography; Climate.

UNIT II Soil-formation, types and distribution; natural vegetation-classification and forest resources.

UNIT III Agriculture and agricultural products; problems of agriculture.

UNIT IV Mineral and power resources; Industry-development (agro-based, forest-based & mineral-based industries)

UNITV Population-growth, distribution and density; transport and communication.

Recommended Books and References:

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 India: A Regional Analysis**, Kaushal Publ., Shillong.

CORE 11 (GGC 5.12)
DATA BASED ON NORTH EAST INDIA

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Cartographic representation of economic data of NE India in spatial and temporal context: Histogram, Pie graph, Age-Sex Pyramid

UNIT II Use of cartographic symbols and their uses: Iso-chronic cartograms, traffic flow diagrams and choropleth mapping

UNIT III Survey: Plane Table (Radiation and Intersection)

UNIT IV Viva voce and Practical note book

Recommended Books and References:

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.

CORE 12 (GGC 5.21)
REGIONAL PLANNING AND DEVELOPMENT

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To acquaint the student with the basic concept of regional planning and development understand the paradigm shift of environmental issues and planning for sustainable development.*

UNIT I Geographical concept of regional planning, Application of regional concept in planning and development

UNIT II Regional Hierarchy (Micro, Meso and Macro region), types of regions and methods of delineation

UNIT III Integrated area planning, trends in regional development planning, regional disparities.

UNIT IV Concept of development, measurement of levels of regional development, Nature and scope of town/urban planning with special reference to India.

UNIT V Environmental issues in regional planning, planning for sustainable development

Recommended Books and References:

1. De Blij, H. J., Muller, P.O., Winkler Prine, A and Nijman, J. (2010): **The World Today: Concepts and Regions in Geography (5th Edition)**, John Wiley and Sons, U.S.A.
2. Alden J and R. Morgan (1974), **Regional Planning: A Comprehensive View**, Leonard Hill Books, Bath, U.K.
3. Dewer, D. et. al. (eds), (1986), **Regional Development and Settlement Policy**, Allen and Unwin, Boston
4. Friedmann, J. and William, A (1967), **Regional Development and Planning**, Rotterdam Univ. Press
5. Hilhorat, J.G.M., (1975): **Regional Planning**, Rotterdam Univ. Press.
6. Kuklinski, A. R. (ed) 1972: **Growth Poles and Growth Centres in Regional Planning**, Monton, The Hague
7. Misra, R. P., 1969**: Regional Planning, Concepts, Techniques, Policies**, University of Mysore.

CORE 12 (GGC 5.22)
FIELD WORK

Practical Credit: 2 *Teaching Hours: 30*

The students are to prepare a project related to the theory paper. Students are to conduct an independent research (study) of a small areal unit (in nearby area).

Recommended Books and References:

1. Jones, P.A. (1968): **Field Work in Geography**, Longman, Green and Company Ltd., London.
2. Kumar, R. (2011): **Research Metodology (Third Edition)**, SAGE, New Delhi.
3. Lousenbury, J.F. and Aldrich, F.T. (1986): **Introduction to geographic Field Methods and Techniques**, Charles E. Merill Publ, Colombus.
4. Misra, H.N. and Singh, V.P. (2002): **Research Methodology in Geography**, Rawat, New Delhi.
5. Raina, R.M. (2011): **Research in Geography: Trends and Techniques**, Summit Enterprises, New Delhi.
6. Trivedi, R.N. and Shukla, D.P. (1996): **Research Methodology**, Radha Publ., New Delhi.

SEMESTER - VI

CORE 13 (GGC 6.11)
ADVANCED GEOMORPHOLOGY

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To acquaint the students with the growth and development in geomorphology, its place in physical geography and theories of formation of earth.*

UNIT I Development of geomorphology: Geomorphological school in USA, Europe and India

UNIT II Fundamental concepts in geomorphology: Principal of uniformitarianism – James Hutton and Geomorphic process- W. D. Thornbury.

UNIT III Drainage system and pattern (Major drainage system- sequent, insequent, consequent, subsequent, obsequent, super-imposed; Major drainage pattern- trellised, dendritic, rectangular, radial, angular)

UNIT IV Concept of erosion; Normal Cycle of erosion – W. M. Davis, W. Penck; Dynamic Equilibrium theory by J. T. Hack

UNIT V Application of geomorphology to settlements, transport, land use, mining, and environmental hazards management.

Recommended Books and References:

1. Ahmed, E. (2004): **Geomorphology (reprint)**, Kalyani Publ., Ludhiana.
2. Bloom, A.L. (1992): **Geomorphology – A Systematic Analysis**, Prentice-Hall India, New Delhi.
3. Dayal, P. (1996): **A Text Book in Geomorphology**, shukla Book Depot, Patna.
4. Kale, V. And Gupta, A. (2001): **Elements of Geomorphology,** Oxford University Press, Delhi.
5. Kale, S. Vishwas and Gupta, Avijit (1996): **Introduction to Geomorphology**, Orient Longman, Calcutta.
6. Stoddard, D. R. (ed) (1996): **Process and Form in Geomorphology**, Routledge, London.
7. Thornbury, W. D. (1990): **Principles of Geomorphology,** Wiley Eastern Edition, New York.
8. Singh, S. (2004): **Geomorphology,** Prayag Pustak Bhawan, Allahabad.
9. Skinner, B. J. And Poter, S.C. (1996): **The Dynamic Earth,** John Wileyand sons, New York.
10. Sparks, B.W. (1960**): Geomorphology**, Longman, London.

CORE13 (GGC 6.12)
CARTOGRAPHIC TECHNIQUE III

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Average slope determination (Wentworth's method), Drainage frequency and Drainage density

UNIT II Projections (Polyconic and Bonne's) with outline map

UNIT III Height determination using theodolite (Accessible and inaccessible object)

UNIT IV Viva voce and Practical note book.

Recommended Books and References:

1. Talukdar, S. (2008): **Introduction to Map Projection**, EBH Publishers, Guwahati
2. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.
4. Steers, J. A. (1965): **An Introduction to the Study of Map Projection**, University of London Press, London
5. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi.

CORE 14 (GGC 6.21)
GEOGRAPHY OF NAGALAND

Theory Credit: 4 *Teaching Hours: 60*

Objective: *To understand the geographical settings of Nagaland and analyze the regions potentiality for sustainable development.*

UNIT I Location; Physical setting (geology, climate, drainage/river system)

UNIT II Population-demographic characteristics (growth, distribution, density, rural-urban Composition)

UNIT III Economy- Agri and allied; Industries (small scale and cottage industries; tourism and its potential); prospects and problems.

UNIT IV Resources-types, distribution, utilization and management (forests, mineral, hydro)

UNIT V Transport and communication: Transport-modes and their contribution to the economy; Communication-postal, telecommunication.

Recommended Books and References:

1. Gopal Krishnan, R.: Geography of North East India
2. Gopal Krishnan R. (1991): North-East India: Land, People and Economy, Vikash Publishing House, New Delhi.
3. Dr. SoyhunloSebu: Geography of Nagaland, Spectrum Publications, Guwahati, Assam. India.

CORE 14 (GGC 2.62)
PROJECT: FIELD STUDY AND REPORT WRITING (BASED ON NAGALAND)

Practical Credit: 2 *Teaching Hours: 30*

Objectives: *Geography being afield oriented subject it has been designed to let the students acquire firsthand knowledge of the surroundings on various aspects.*

Field works:
Meaning, types and objectives of fieldwork; field methods and techniques; importance of field work in geography, fieldwork based report writing.

Field Study in local environment:
Preparation of field report through fieldwork on any one of the following areas:

- A locality of the city/town
- A village near the city/ town

Field Trip: *to any nearby region for comparative study with the study area.*

Report Writing

DISCIPLINE SPECIFIC ELECTIVE (DSE)

DISCIPLINE SPECIFIC ELECTIVE 1 (GGD 5.11(a))
DEMOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

UNIT I Definitions and scope of Population Geography; Historical development of Population Geography.

UNIT II Measures of population distribution and concentration, factors affecting population distribution – physical, social and cultural factors.

UNIT III World population distribution, density and growth, movement of population and the factors influencing migration – national, international, external, internal.

UNIT IV Population and resources: over population, under population, optimum population; Population problems/pressure in the developed and developing world.

UNIT V Population theories – Classical and Modern (Malthusian, Karl Marx and Demographic Transition).

Recommended Books and References:

1. Bhattacharya: Population Geography of India (1981).
2. Chandna, R.L: Introduction to Population Geography (1980).
3. Clarke: Population Geography and Developing Countries (1981).
4. Thompson W. S.: Population Problems.

DISCIPLINE SPECIFIC ELECTIVE 1 (GGD 5.11(b))
GEOGRAPHY OF HEALTH AND WELLBEING

Theory Credit:4 *Teaching Hours: 60*

UNIT I Perspectives on Health: Definition; linkages with environment, development and health; driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality.

UNIT II Pressure on Environmental Quality and Health: Human activities and environmental pressure land use and agricultural development; industralisation; **transport and energy.**

UNIT III Exposure and Health Risks: Air pollution; household wastes; water; housing; workplace.

UNIT IV Health and Disease Pattern in Environmental Context with special reference to India, Types of Diseases and their regional pattern (Communicable and Lifestyle related diseases).

UNIT V Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents; food production and nutrition.

Recommended Books and References:

1. Akhtar Rais (Ed.), 1990: Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Avon Joan L. and Jonathan A Patzed.2001: Ecosystem Changes and Public Health, Baltimin, John Hopling Unit Press(ed).
3. Bradley, D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.
4. Christaler George and Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling, Boston Kluwer Academic Press.
5. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
6. Gatrell, A. and Loytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
7. Hardham T. and Tannav M., (eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
8. Murray C. and A. Lopez, 1996: The Global Burden of Disease, Harvard University Press.
9. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harvard Univ. Press.
10. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
11. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

DISCIPLINE SPECIFIC ELECTIVE 1 (GGD 5.12)
CARTOGRAPHIC TECHNIQUE I

Practical Credit:2 *Teaching Hours:30*

Representation of statistical data using various techniques: Choropleth, Chorochromatic, Symbol or Choroschematic, Traffic flow, Block and block-pile diagram

DISCIPLINE SPECIFIC ELECTIVE 2 (GGD 5.21(a))
SOCIAL GEOGRAPHY

Theory Credit: 4 *Teaching Hours:60*

UNIT I Social Geography: Concept, Origin, Nature and Scope.

UNIT II Peopling Process of India: Technology and Occupational Change; Migration.

UNIT III Social Categories: Caste, Religion and Race, and their Spatial distribution.

UNIT IV Geographies of Welfare and Well-being: Concept and Components – Healthcare, Housing and Education.

UNIT V Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime.

Recommended Books and References:

1. Ahmed A., 1999: *Social Geography*, Rawat Publications.
2. Casino V. J. D., Jr., 2009) *Social Geography: A Critical Introduction*, Wiley Blackwell.
3. Cater J. and Jones T., 2000: *Social Geography: An Introduction to Contemporary Issues*, Hodder Arnold.

4. Holt L., 2011: *Geographies of Children, Youth and Families: An International Perspective,* Taylor & Francis.
5. Panelli R., 2004: *Social Geographies: From Difference to Action*, Sage.
6. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: *Introducing Social Geographies,* Oxford University Press.
7. Smith D. M., 1977: *Human geography: A Welfare Approach*, Edward Arnold, London.
8. Smith D. M., 1994: *Geography and Social Justice*, Blackwell, Oxford.
9. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: *The SAGE Handbook of Social Geographies*, Sage Publications.
10. Sopher, David (1980): *An Exploration of India*, Cornell University Press, Ithasa

DISCIPLINE SPECIFIC ELECTIVE 2 (GGD 5.21(b))
GEOGRAPHY OF TOURISM

Theory Credit: 4 *Teaching Hours:60*

UNIT I Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations; Geographical Parameters of Tourism by Robinson.

UNIT II Growth and development of tourism; Types of Tourism: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage

UNIT III Recent Trends of Tourism: International and Regional; Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings Incentives Conventions and Exhibitions (MICE)

UNIT IV Impact of Tourism: Economy, Environment, Society

UNIT V Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert and Coastal Areas; National Tourism Policy

Recommended Books and References:

1. Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
2. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.
3. Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.
4. Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann-USA. Chapter 2.
5. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, www.cabi.org.
6. Tourism Recreation and Research Journal, Center for Tourism Research and Development, Lucknow
7. Singh Jagbir (2014) "Eco-Tourism" Published by - I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).
8. Robinson,H. Geography of tourism(Aspect Geographies); Published by MacDonald and Evans.

DISCIPLINE SPECIFIC ELECTIVE 2 (GGD 5.22)
PAPER PRESENTATION

Practical Credit: 2 *Teaching Hours: 30*

Note: *Students will be assigned topics based on the theory paper for presentation.*

DISCIPLINE SPECIFIC ELECTIVE 3 (GGD 6.11(a))
AGRICULTURE GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

Objective: *The objective of this paper is to familiarize the students with importance of Agriculture Management keeping an emphasis on agriculture in Nagaland*

UNIT I Agriculture geography: nature, scope, significance; Land use classification.

UNIT II Determinants of Agriculture: Physical, Economic, Social and Culture.

UNIT III Agricultural regions of the world (classification): Whittlesey's classification and Earl B Shaw's classification.

UNIT IV Indian agricultural regions: Agro-Climatic, Agro-ecological and crop combination Regions.

UNIT V Agricultural revolutions in India: Green, White, Blue, Pink

Recommended Books and References:

1. Anderson, E. (1970): **Geography of Agriculture,** W.M. C. Brown Co, Iowa
2. Bayliss Smith, T. P. (1987): **The Ecology of Agricultural Systems,** Cambridge University Press, London.
3. Gregor, H.P. (1990): **Geography of Agriculture,** Prentice – Hall, New York.
4. Grigg, D.B.(1974): **The Agricultural System of the World,** Cambridge University Press, London.
5. Shafi, M (2006): **Agricultural Geography,** Pearson Education, New Delhi.
6. Singh, S (1994): **Agricultural Development in India: A Regional Analysis,** Kaushal Publications, Shillong.
7. Singh, J. et al., (1984): **Agricultural Geography,** Tata Mc Graw hill, New Delhi.

DISCIPLINE SPECIFIC ELECTIVE 3 (GGD 6.11(b))
URBAN GEOGRAPHY

Theory Credit: 4 *Teaching Hours :60*

UNIT I Urban geography: Introduction, nature and scope

UNIT II Patterns of Urbanisation in developed and developing countries

UNIT III Functional classification of cities: Quantitative and Qualitative Methods

UNIT IV Urban Issues: problems of housing, slums, civic amenities (water and transport)

UNIT V Case studies of Delhi, Mumbai, Kolkata, Chennai and Chandigarh with reference to Land use and Urban Issues

Recommended Books and References:

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 University Press.
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

DISCIPLINE SPECIFIC ELECTIVE 3 (GGD 6.12)
GRAPHICAL REPRESENTATION OF DATA

Practical Credit: 2 *Teaching Hours: 30*

UNIT I Graphical representation using block-pile diagram.

UNIT II Representation of data: Cummulative graph, Ergograph.

UNITIII Distribution of urban population using simple and multiple dot.

UNITIV Viva voce and Practical Note book

Recommended Books and References:

1. Mishra, R.P. and Ramesh A. (1989): **Fundamentals of Cartography**, Concept Publishing Company, New Delhi.
2. Sarkar, A. K. (1997): **Practical Geography: A Systematic Approach,** Orient Longman, Kolkata
3. Singh, R. L. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.

DISCIPLINE SPECIFIC ELECTIVE 4 (GGD 6.21(a))
POLITICAL GEOGRAPHY

Theory Credit: 4 *Teaching Hours: 60*

UNIT I Introduction: Concepts, Nature and Scope.

UNIT II State, Nation and Nation State – Concept of Nation and State, Attributes of State – Frontiers, Boundaries, Shape, Size, Territory and Sovereignty, Concept of Nation State; Geopolitics; Theories (Heartland and Rimland)

UNIT III Electoral Geography – Geography of Voting, Geographic Influences on Voting pattern, Geography of Representation, Gerrymandering.

UNIT IV Political Geography of Resource Conflicts – Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals.

UNIT V Politics of Displacement: Issues of relief, compensation and rehabilitation: with reference to Dams and Special Economic Zones

Recommended Books and References:

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*, Routledg.Mathur H M and M MCernea (eds.) Development, Displacement and Resettlement – Focus on Asian Experience, Vikas, Delhi
8. Painter J. and Jeffrey A., 2009: *Political Geography*, Sage Publications.
9. Taylor P. and Flint C., 2000: *Political Geography*, Pearson Education.
10. Verma M K (2004): Development, Displacement and Resettlement, Rawat Publications, Delhi
11. Hodder Dick, Sarah J Llyod and Keith S McLachlan (1998), *Land Locked States of Africa and Asia* (vo.2), Frank Cass

DISCIPLINE SPECIFIC ELECTIVE 4 (GGD 6.22(a))
CARTOGRAPHIC TECHNIQUE II

Practical Credit: 2 *Teaching Hours: 30*

History of maps. Types of maps: Cadastral maps, Topographical maps, Walls maps, Chorographical or Atlas maps. Importance and uses of maps. Conventional signs and symbols. Map drawing equipments. Map drawings: boundaries (international, national, state, district, etc).

Recommended Books and References:

1. Singh, R. L. and Singh, Rana: Elements of Practical Geography (Revised edition), Kalyan Publishers.
2. Monkhouse, F.J. and Wilkinson, F.J. (1985): **Maps and Diagrams,** Methuen, London.

3. Singh, L.R. (2006): **Fundamentals of Practical Geography**, Sharda Pustak Bhawan, Allahabad.

DISCIPLINE SPECIFIC ELECTIVE 4 (GGD 6.21(b))
DISSERTATION

Credit: 6 *Teaching Hours: 90*

This dissertation/project will be in lieu of a discipline specific elective paper. The students will be asked to select topics based on their interest. The topics will be of the specific course they are undertaking i.e. geography. The students will be assisted by their respective teacher in charge and at the end of the semester, the students will have to present a seminar of their projects at the end of the semester. They will also have to submit a hard copy of their project.
The paper will be assessed on the following points:

Project report
Seminar/presentation
Viva-voce

SKILL ENHANCEMENT COURSE

SKILL ENHANCEMENT COURSE 1 (GGS 3.12(a))
REMOTE SENSING (PRACTICAL)

Practical Credit: 2 *Teaching Hours: 30*

1. Remote Sensing: Definition and types; Processes and elements of remote sensing; platforms and sensors.
2. Photogrammetry: Aerial Photography (Principles, Types and Geometry of Aerial Photograph)
3. Image Processing and Interpretation (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised)
4. Application of Remote Sensing: Land Use and Land Cover

Recommended Books and References:

1. Bhatta, B. (2008) Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press
3. Chauniyal, D. (2010) Sudur Samvedana Avam Bhaugolik Suchna Pranali, Sharda Pustak Bhawan, Allahabad.
4. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
5. Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
6. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
7. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
8. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
9. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
10. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.

SKILL ENHANCEMENT COURSE 1 (GGS 3.12(b))
ADVANCED SPATIAL STATISTICAL TECHNIQUES

Practical Credit: 2 *Teaching Hours: 30*

1. Statistics and Statistical Data: Spatial and non-spatial.
2. Sampling: Sampling plans for spatial and non-spatial data, sampling distributions.
3. Correlation: Rank order correlation and product moment correlation.
4. Regression Analysis: linear regression, residuals from regression, and simple curvilinear regression.
5. Time Series Analysis: Time Series processes; Smoothing time series; Time series components.

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

Recommended Books and References:

1. Bart James E and Gerld M. Barber, 1996: Elementary Statistics for Geographers, The Guieford Press, London.

2. Eldon, D., 1983: Statistics in Geography: A Practical Approach, Blackwell, London.
3. Cressie, N.A.C., 1991: Statistics for Spatial Analysis, Wiley, New York.
4. Gregory, S., 1978: Statistical Methods and the Geographer (4th Edition), Longman, London.
5. Haining, R.P., 1990: Spatial Data Analysis in the Social and Environmental Science, Cambridge University Press, Cambridge.
6. Mc Grew, Jr. and Cahrles, B. M., 1993: An Introduction to Statistical Problem Solving in Geography, W.C. Brocan Publishers, New Jersey.
7. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
8. S.K., 1998: Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi.
9. Wei, W.S.,1990: Time Series Analysis: Variate and Multivariate Methods, Addison Wesley Publishing.
10. Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, Mc Grawhill, New York.

SKILL ENHANCEMENT COURSE 2 (GGS 4.12(a))
GEOGRAPHICAL INFORMATION SYSTEM

Practical Credit: 2 *Teaching Hours: 60*

1. Geographical Information System (GIS): Definition and development, Standard GIS softwares.
2. Components of GIS; GIS Data Structures: Types (spatial and non-spatial).
3. Global Positioning System (GPS) – Principles and Uses.
4. Interpretation and Application of GIS: Land Use Mapping; Basic Spatial data Analysis.

***Practical Record**: A project file consisting of 5 exercises on using any GIS Software on abovementioned themes.*

Recommended Books and References:

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg.41
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial
3. Information System and Geo-statistics. Oxford University Press
4. Chauniyal, D.D. (2010) Sudur Samvedanevam Bhogolik Suchana Pranali, Sharda Pustak Bhawan, Allahabad
5. Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
6. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
7. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
8. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
9. Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

SKILL ENHANCEMENT COURSE 2 (GGS 4.12(b))
RESEARCH METHODS

Practical Credit: 2 *Teaching Hours: 30*

1. Geographic Enquiry: Definition and Ethics; Framing Research Questions, Objectives and Hypothesis; Literature Review; Preparing Sample Questionnaire
2. Data Collection: Type and Sources of Data; Methods of Collection; Input and Editing
3. Data Analysis: Qualitative Data Analysis; Quantitative Data Analysis; Data Representation Techniques
4. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract
5. Preparation of Research Report

Recommended Books and References:

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.
8. Special Issue on “Doing Fieldwork” The Geographical Review 91:1-2 (2001).
9. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
10. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.
11. Yadav, H. (2013) Shodh Pravidhi Evam Matratamak Bhugol, Raja Publications, Delhi