

FOUR YEARS UNDERGRADUATE PROGRAMME FOR

Geography

2022

(Based on NEP 2020, LOCF and CBCS)



Department of Geography Oriental College (Autonomous), Imphal

Introduction of geography syllabus based on NEP 2020 Recommendation.

In the best interests of students the Geography Department Oriental College imbibes a Learning Outcome-based Curriculum Framework (LOCF) for all its Under Graduate programs.

The LOCF approach is envisioned to provide a focused, outcome-based syllabus at the undergraduate level with an agenda to structure the teaching-learning experiences in a more student-centric manner. The LOCF approach has been adopted to strengthen students' experiences as they engage themselves in the program of their choice. The Under- Graduate Programs will prepare the students for both, academia and employability. The programs state the attributes that it offers to inculcate at the graduation level. The graduate attributes encompass values related to well- being, emotional stability, critical thinking, social justice and also skills for employability. In short, each program prepares students for sustainability and life-long learning.

The new curriculum of B.A. (Hons) Geography based on the ideal structure of NEP 2020 is

1. To orient the students towards identification and analysis of various facets of geographic and geographical features and processes.
2. To develop students' aptitude for acquiring basic skills of carrying out field work.
3. To facilitate the students to learn skills of map making.
4. To guide students to learn the science and art of collecting, processing and interpreting the data.
5. To expose the students to the use of the updated technologies of remote sensing, GNSS, Geographical Information System (GIS) and GIS science.
6. To understand the basic constituent of research oriented in VII and VIII semester

Fundamentals: This curriculum focuses on the understanding of core and fundamental branches of the discipline. These papers are specially designed to cater to foundation building of the students by imparting knowledge about the pillars of geography. It encompasses the evolution of the subject right from the experiences and understanding of travellers and explorers regarding space, place and people to the progression towards establishment of the discipline geography in social sciences. Care has been taken to cover all basic themes in geography. The classic and

contemporary theories / models of the subject are incorporated in most papers. These core branches cover the two broad spectrums of physical and human geography, along with the interface branch of environmental studies. The discipline also involved practical to enrich the process of knowledge assimilation varied tools and technique oriented papers. It includes traditional mapping concepts to digital and space based learning. There has been emphasis on use of sophisticated methods of data collection as well as data processing through exhaustive field work, use of basic statistics and Geographic Information System.

Application Oriented: In addition to this, the applied component has also been integrated in the syllabus for skill enhancement and capacity building. Laboratory and project based learning are important constituents of these papers. Hands on learning making use of various tools, equipment and software are essential mechanism for knowledge transfer. There has been focus on student centric education that involves an exploratory approach and gaining proficiency by learning both inside and outside their classrooms.

Regional Approach: In most of the papers regional dimensions are added through theoretical case studies and field excursions. Along with the global dimensions of the issues that are covered in syllabus papers like geography of India purely caters to regional and local approach to the understanding. The most significant attributes to students is the knowledge on Regional Development by considering the geographic, economic and demographic indicators.

GRADUATE ATTRIBUTES:

Some of the characteristic attributes of an Honors graduate in Geography include:

Disciplinary Knowledge: Students gains in-depth knowledge of basic and applied areas of geography. Core and discipline courses train them in fundamental branches of the subject. Technical and skill courses help them to learn tools and techniques. Geography student gets a unique opportunity to experiment and observe on the field.

Communication Skills: Students develops effective communication skills through oral presentations, and group discussions on the subject content. Besides interviewing people, field surveys and public dealing with different cadre of people makes him/her confident in communication. The compiling, processing and analyzing the

information from the field and presenting in the form of reports enhances written communication skills.

Critical Thinking: Geography subject creates scientific logic aptitude and approaches a problem through critical reasoning. The course content is enabled to stimulate the questioning capacity for what, where, who, when and how. The papers like Environmental Geography, Disaster Management, Global Economic System, Resource Management to name a few. **Problem Solving:** The understanding about surroundings, the issues that concerns life, climate or to that matter water crisis etc makes students yearn to look for solutions. Geography discipline has the flair which connects to everyday living and survival thus generates problem solving aptitude.

Analytical Reasoning: The geography course teaches variety of tools, techniques and data handling which develop analytical reasoning to solve the issues. In fact the training in all these courses is meant to develop the analytical reasoning, mining the data from satellite images, aerial photographs and observations to arrive at interpretations and inferences.

Research Related Skills: The course content trains students to learn basic research design, data collection process, and ethics to conduct research work through field work. The specially developed course on research methodology and field work acquaint them to prepare questionnaires, selecting sample plans, identifying right kind of objectives, data collections methods, field exposure, mental mapping, reproducing the observations, analysis and finally to prepare reports.

Cooperation/ Teamwork: The course enables to develop skill to work with students of diverse backgrounds and cooperation on same topic will increase better understanding. The group assignments and presentations are essential elements in the course design that will inculcate the team spirits. The field excursions help develop great bonding; working and executing the plans on ground. They also learn to work as team in case any emergency with group member away from institution/home/or city.

Scientific Reasoning: Course will develop critical analysis of theories and models, raising critical questions about the theories and models, developing hypothesis and learning their testing. Many of the courses in geography are truly scientific in nature which will generate scientific reasoning aptitude and also skills to look towards new approaches.

Reflective Thinking: A graduate who successfully completes his/her course should be able to reflect on the assimilated knowledge so as to apply these skills at different levels. Whether they go for masters in pure or applied disciplines, it will inculcate a sense of understanding of

the world to manage real world problems. Any teaching learning process is incomplete without clear reflection of the theoretical, practical and applied knowledge of the subject. A degree in geography has ample scope in other field of studies too as the subject with its interdisciplinary approach helps the learners to think in a more comprehensive manner.

PROGRAMME LEARNING OUTCOMES:

1. The learning outcome is to prepare the students of BA/BSc Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers covering various themes and also maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic and applied sciences/social sciences.

2. Students of the BA/BSc Honours degree in Geography will learn to use geographic understanding of various sub fields such as physiography, resources, global economic systems, socio- cultural aspects, rural and urban milieu, environmental disaster studies and mapping methods.

3. They are trained to read and interpret maps, prepare transect charts and thematic atlas.

They are also able to read and analyze weather phenomenon through weather maps and charts.

Students will acquire scientific methodology of data handling, hypothesis generation, testing and analysis.

4. The curriculum also provides an opportunity to digitally produce maps and modelling applications.

5. The students also learn hand on skills to prepare building disaster plans, community disaster preparedness and also awareness creation.

6. They will also develop an understanding of global issues from economic, social, environmental and political perspectives, which has relevance in further studies all across the globe.

7. They also develop effective communication skills, team work, travel exposure and zeal of investigation and exploration.

8. After the completion of the entire course through I to VIII semester students will be equipped with research tools and methods for writing dissertation/thesis making a way for Ph.D level.

COURSE LEVEL LEARNING OUTCOMES:

- 1. Basic Concept:** The fundamental concepts and philosophical foundation of each course need to be discussed.
- 2. Understanding Landscape:** An understanding of landscape at different levels needs to be discussed and understood for a thorough knowledge of spatial dimensions.
- 3. Understanding Ecosystem Structure and Potential:** To comprehend the dynamic dimensions of human and ecosystem relationships.
- 4. Human Perception and Behaviour:** Learning human perception and behaviour to acquire the geographical knowledge evolved over time, is essential to improve decision making process.
- 5. Identification of Critical Problems and Issues:** Detection and identification of the critical problems and spatial issues are essential for sustainable development.
- 6. Field Based Knowledge:** Field based knowledge is essential to understand the ground reality, spatial patterns and processes.
- 7. Spatial Tools and Techniques:** The basics and applications of spatial tools and techniques are essential to make the studies more scientific and applicable.
- 9. Statistical Techniques:** Use of statistical tools and techniques is essential for precise and

Teaching Learning Processes

Learning Outcomes based Curriculum Framework (LOCF) for geography incorporates dynamic processes including fundamental and modern techniques, contemporary paradigms such as global initiatives like Sustainable Development Goals (SDGs), Disaster Risk Reduction (DRR), Paris Climate Action and national initiatives like smart cities, food security, water security, energy security, biodiversity, disaster management, human health and wellbeing and livelihood security. The approaches are to make geography more scientific and societal-need oriented that could be the panacea of India's development. Geography uses scientific knowledge with the present focus that includes spatio-temporal analysis, skill development, GIScience, sustainable development and human security.

Learning is a challenging, engaging, and enjoyable activity. Learners should be encouraged to engage in a rigorous process of learning and self-discovery by adopting a highly focused and yet flexible approach to education. Each day learners should be encouraged to focus on key areas of the course and spend time on learning the course fundamentals and their application

in life and society. In teaching and learning pedagogy, there should be a shift from domain or conclusions based approach to the experiential or process based approach.

Geography curriculum inculcates knowledge of essential concepts of physical and human geography together with appropriate techniques using lectures, tutorials, group discussion, presentation, assignment evaluation, lab work and field visits. Thus, pedagogy process includes:

- a) Identifying and explaining the physical and cultural characteristics globally and processes at varied spatio-temporal contexts.
- b) Understanding human-environment and nature-society interactions as well as various global environmental challenges.
- c) Analysing geographic information by using geo-spatial technologies.
- d) Responding towards the global and national initiatives.

Broad framework for teaching in the class includes:

1. Theory courses should have 6 hours per week for courses carrying 6 credits.
2. Tutorial group of each theory course should have a group size of 15 students.
3. Practical courses should have 12 hours per week for a group of 15 students.
4. Practical courses will not have tutorials.
5. There is no practical paper in B.A./BSc. Programme

The faculty should promote learning on a proportionate scale of 20:30:50 principle, where lectures (listening/hearing) constitute 20 per cent of the delivery; visuals (seeing) 30 per cent of the learning methods; and experience (doing/participating) 50 per cent. This ratio is subject to change as per institutional needs.

In order to achieve its objective of focused process based learning and holistic development, the Institution/University may use a variety of knowledge delivery methods:

1. Lectures

Lectures should be designed to provide the learners with interesting and fresh perspectives on the subject matter. Lectures should be interactive in a way that students work with their

teachers to get new insights in the subject area, on which they can build their own bridges to higher learning.

2. Discussions

Discussions are critical components of learning, and can be used as a platform for students to be creative and critical with old and new ideas. Besides developing critiquing skills, arriving at consensus on various real life issues and discussion groups lead to innovative problem solving and, ultimately to success.

3. Life Skills:

Life skills provide students opportunities to understand real life situations and scenarios (i.e. coping with disaster), and solve challenges in a controlled environment or make use of them in simulating cultural experiences by locating/transposing them in new (local, regional, national and international) situations.

4. Case Studies:

Case studies, wherever possible, should be encouraged in order to challenge students to find creative solutions to complex problems of individual, community, society and various aspects of knowledge domain concerned.

5. Role Playing

Assuming various roles, as in real life, is the key to understanding and learning. Students are challenged to make strategic decisions through role-plays, and to analyze the impact of these decisions. For this purpose, incidents from literary texts may also be used.

6. Team Work

Positive collaboration in the form of teamwork is critical in the classroom environment, for which it is necessary to transcend one's prejudices and predilections so as to achieve the desired outcomes. In the process of teamwork, learners will acquire the skills of managing knowledge acquisition and other collaborative learners, thereby understanding how to incorporate and balance personalities.

7. Study Tours/Field Visits:

Study Tours/ Field trips provide opportunities to the learners to test their in-class learning in real life situations as well as to understand the functional diversity in the learning spaces. These may include visits to sites of knowledge creation, preservation, dissemination and application. Institutions may devise their own methods to substitute/modify this aspect.

8. Academics-Industries Interface:

The course curriculum of B.A/BSc. (Hons.) should encourage students for closer interaction with industries/corporate/research institutes, etc. for at least one week internship and training.

Assessment Methods:

The assessment of students' achievement in geography will be aligned with course/program learning outcomes and the academic and geographical skills that the program is designed to be developed. Different assessment methods that are appropriate within the discipline of geography will be used. Learning outcomes will be assessed through continuous evaluation using the oral and written examinations, cartographic and computer based exercises (GIS), practical assignments, observations of practical skills, project and field work reports, seminar presentations, viva voce, output from collaborative work activities and attendances, etc.

The syllabus is prepared with reference to UGC Geography, CBCS and Manipur University

ORIENTAL COLLEGE (AUTONOMOUS), IMPHAL 4-Year UG Programme Structure for Geography

Year I (Level 5) total credits: 2 Sem. x24=48						
Sem	CC(18 courses x6 credit each)	#DSEC(4 courses x6 credit each)	GEC(6 courses x6 credit each)	SEC(2 courses x4 credit each)	AECC(2 courses x4 credit each)	VAC (8 courses x2credit each)
1	Physical geography-HC 501			Political Geography-SE 501	GEN-AE 1 / MAN-AE 1	
	Cartography-1-(Practical) HC 502					
2	Human geography-HC 503			Basic Statistical Technique -SE 502	EVS-AE 2	
	Thematic Cartography-HC 504(practical)					
Year II (Level 6) total credits: 2 Sem. x 26=52						
3	Geography of India-HC 601		Human and economic geography-HG 601			
	World regional geography					
	Statistical method in Geography-HC 603(Practical)					
4	Economic geography-HC 604		Industrial Geography-HG 602			
	Evolution of Geographical Thought-HC 605					
	Field work and Research Method-(Practical) HC 702					
Year III (Level 7) total credits: 2 Sem. x 26=52						
5	Population Geography-HC 701	Resource Geography-HE 701/ Social geog -HE 701/ Health Geography.-HE 701	Agricultural Geography-HG 701			
	Remote sensing and GIS (practical)-HC 606					
6	Climatology-HC 703	Hydrology-HE 702/ Bio geography-HE 702/ Oceanography-HE 702	Environmental Geography-HG 702			
	Geographical Field survey report.-HC 704					
Year IV (Level 8) total credits: 2 Sem. x 24=48						
7	Settlement Geography -HC 801	Urban geog-HE 801/ Rural geog-HE 801/ HE 801 Development-HG 801	Sustainable Resource Geography of Northeast India-			
	Geomorphology					
8	Research methodology in Geography.-HC 803	XXX-HE 802 Dissertation	Fluvial Geomorphology-HG 802			
	Maps and topographical interpretation					
<p>TOTAL: CC: 18 courses for 108 credits;DSEC: 4 courses for 24 credits; GEC; 6 courses for 36 credits;SEC: 2 courses for 8 credits; AECC: 2 courses for 8 credits; VAC: 8 courses for 16 credits (altogether 40 courses/papers& 200 Credits)</p> <p># DSEC option courses should represent the major branches of the Discipline/Subject. XXX represents subject Code, say CHM for Chemistry as adopted in the college Core course= Hons. Discipline Specific Core Course (18 papers of 6 credit each) – Course Code: HC AECC=Ability Enhancement Compulsory Course (2 papers of 4 credit each)- Course Code: AE SEC= Skill Enhancement Course (2 papers of 4 credit each) - Course Code: SE DSEC= Discipline Specific Elective Course (4 papers of 6 credit each) - Course Code: HE GEC= Generic Elective Course (6 papers of 6 credit each) - Course Code: HG VAC= Value Addition Courses (cf- Graduate Descriptors)</p>						
<ul style="list-style-type: none"> • Award of Bachelor's Degree with Honours in a Discipline on completion of courses equal to minimum 182 credits in 4 years • Award of Bachelor's Degree with pass certificate in a Discipline on completion of courses equal to minimum 140 credits in 3 years • Award of Bachelor's with Diploma in a Discipline on completion of courses equal to minimum 96 credits in 2 years • Award of Bachelor's with Certificate in a Discipline on completion of courses equal to minimum 46 credits in 1 year 						

Semester 1
BA/BSc (honours) Geography
Core course
Paper code: HC 501
Name: Physical Geography (Theory)
Total Credits = 6

Learning Outcomes: After the completion of course, the students will have the ability to:

1. Understand the various components of the earth system and the process which shapes the earth.
2. Distinguished various types of wind, and the spheres of the earth.
3. Identify various type of landforms and their formation processes

COURSE CONTENT

1. Physical Geography: Definition and Scope; Components of Earth System.
Lithosphere: Internal Structure of the Earth. Major landforms—Mountains, Plateau and Plains 14
2. Endogenetic and Exogenetic processes; Works of River, Winds, Karst , drainage pattern, Fluvial cycle of Erosion – W.M.Davis. 14
3. Atmosphere: Composition and Vertical Structure; Heat Balance; Pressure and pressure belt, Wind- types-Planetary, Periodic and local winds. 14
4. Humidity and forms of condensation, precipitation, cyclones and anti-cyclones . 13
5. Hydrosphere: Hydrological Cycle, Ocean Bottom Relief Features, Tide and Currents – Indian Ocean, Oceanic Deposits. 14

Reading List

1. Conserva, H., 2004. *Illustrated Dictionary of Physical Geography*. s.l.:Author House.
2. Gabler, R., Petersen, J. & Trapasso, L., 2007. *Essentials of Physical Geography*. 8th ed. Brooks/Cole: Thompson.
3. Garrett, N., 2000. *Advanced Geography*. s.l.:Oxford University Press.
4. Goudie, A., 1984. *The Nature of the Environment : An Advanced Physical Geography*. Oxford: Basil Blackwell Publishers.
5. Hamblin, W., 1995. *Earth's Dynamic System*. N.J.: Prentice-Hall.
6. Husain, M., 2002. *Fundamentals of Physical Geography*. Jaipur: Rawat Publications.
7. Monkhouse, F., 2009. *Principles of Physical Geography*. Kolkata: Platinum Publishers
8. Strahler, A. & Strahler, A., 2008. *Mordern Physical Geography*. New York: John Wiley & Sons.

Semester 1
BA/BSc (honours) Geography
Core course
Paper code: HC 502
Paper Name: Cartographic Techniques
(Practical)
Total credits: 6

Learning Outcome:

After the completion of the course the students will be able to:

1. Differentiate between various type scales and map projections.
2. Define various type map projections and their uses and importance.
3. Read and prepare map

COURSE CONTENTS:

1. Cartography: Nature and Scope. 13
2. Scales: Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales. 14
3. Map Projections: Classification, Properties and Uses; Graphical Construction of Polar Zenithal groups, Conical and Cylindrical projections. 14
4. Mollweide, Bonne's and Mercator's Projections 14
5. Topographical Map: Interpretation of a Mountain area with the help of Cross and Longitudinal Profiles.

Practical Record: A Project File in pencil, comprising one exercise *each*, on scale, map projection, interpretation of topographic sheet.

Reading List

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

Semester 1
BA/BSc (honours) Geography
Paper code: SEC 501 (Theory)
Name: Political Geography
Total Credits = 4

Learning Outcomes: Course Learning Outcomes:

After the completion of course, the students will have ability to:

1. Learn the concept of nation and state and geopolitical theories
2. Understand the different dimensions of electoral geography and resource conflicts
3. Have sound knowledge of politics of displacement, focusing on dams and SEZ

Course Contents:

1. Introduction: Concepts, Nature and Scope. 13
2. 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). 17
3. International boundaries, their functions and classifications, boundaries and buffer zones. 15
4. Geographical factors in international relations; UNO and its functions. 15

Reading List

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

Semester II
BA/BSc (honours) Geography
Core course
Paper code: HC 503
Name: Human geography (Theory)
Total Credits = 6

Learning Outcomes:

After the completion of the course the students will be able to:

1. Define the nature and scope of human geography and its relevance.
2. Study population and settlement patterns and their determinants.

Course Contents:

1. Introduction: Defining Human Geography; Nature and Scope of Human Geography; Contemporary Relevance. 14
2. Space and Society: Cultural Regions: Race; Religion and Language. 13
3. Population: Population Growth and Distribution: Population Composition; Demographic Transition Theory. 15
4. Settlements: Types and patterns Rural Settlements; Functional Classification of Urban Settlements-Growth, Structure; Trends and Patterns of World Urbanization. 15
5. Population – Relationship of Man and Environment. 13

Reading List

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

Semester II
BA/BSc (honours) Geography
Core course
Paper code: HC 504
Name: Thematic Cartography (Practical)
Total Credits = 6

Learning outcomes:

After the completion of the course, students will be able to

Classify various types of maps and read them. Represent different data by diagrams.

Course content:

1. Maps: Classification and Types; Principles of Map Design. 13
2. Diagrammatic Data Presentation: Line, Bar, Circle, Square, Cuboid and Sphere. 13
3. Thematic Mapping Techniques: Properties, Uses and Limitations; Areal Data- Choropleth, Dot, Proportional Circles; Point Data- Isopleths. 15
4. Cartographic Overlays: Point, Line, Areal Data and Ergo graph. 14
5. Thematic Maps: Preparation and Interpretation; Age-Sex Pyramid. 14

Practical Record: A Thematic Atlas should be prepared on a specific theme with five plates of any state in India

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

Semester II

BA/BSc (honours) Geography

Core course

Paper code: SEC 502

Name: Basic statistical technique

Total Credits = 2

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the basics of data collection and processing for the meaningful outcomes.
2. Comprehend the representation and interpretation of the results.
3. Put into practice results obtained in representation as well as day-to-day life.

Course Content:

1. Use of Data in Geography: Significance of Statistical Methods in Geography; Sources of Data, Histogram, Polygon and Ogive. 10
2. Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles); Cross Tabulation; Central Tendency (Mean, Median and Mode) 10
3. Centro-graphic Techniques; Dispersion (Standard Deviation, Variance and Coefficient of Variation). 10

Class record

1. Construct a data matrix of about (10x 10) with each row representing an areal unit (districts or villages or towns) and about 10 columns of relevant attributes of the areal units.
2. Based on the above table, a frequency table, measures of central tendency and dispersion would be computed and interpreted for any two attributes.
3. Histograms and frequency curve would be prepared on the entire data set and attempt to fit a normal curve and interpreted for one or two variables.

Reading List

1. Berry , B. J. L. & Marble , D. F., n.d. *Spatial Analysis - A Reader in Geography*. s.l.:s.n.
2. Ebdon , D., 1977. *Statistics in Geography: A Practical Approach*. s.l.:s.n.
3. Hammond , P. & McCullagh , P. S., 1978. *Quantitative Techniques in Geography: An Introduction*. s.l.:Oxford University Press..
4. King, . L. S., 1969. *Statistical Analysis in Geography*. s.l.:Prentice-Hall.

Semester III
BA/BSc (honours) Geography
Core course
Paper code: HC 601
Name: Geography of India (Theory)
Total Credits = 6

Learning outcomes:

After the completion of course, the students will have ability to:

1. Understand the physical profile of the country
2. Study the resource endowment and its spatial distribution and utilization for sustainable development
3. Synthesise and develop the idea of regional dimensions.

Course Contents:

1. Physical: Physiographic Divisions; Soil and Vegetation; Climate (Characteristics and Classification). 14
2. Population: Distribution, Growth and Structure (with special reference to Manipur). 13
3. Economic: Mineral and Power Resources Distribution and Utilisation of Iron Ore, Coal, Petroleum, Gas; Agricultural Production and Distribution of Rice and Wheat, Industrial Development: Automobile and Information Technology. 15
4. Social: Distribution of Population by Race, Caste, Religion, Language, Tribes and their Correlates. 14
5. Regionalisation of India: Physiographic (R. L. Singh); Socio - cultural (Sopher); Economic (Sengupta); Regions of Manipur based on the existing Hill-Valley Divide. 14

Reading List

1. Deshpande , C. D., 1992. *India: A Regional Interpretation*. New Delhi: ICSSR.
2. Johnson, B. L. C., 2001. *Geographical Dictionary of India*. New Delhi: Vision Books.
3. Mandal , R. B., 1990. *Patterns of Regional Geography - An International Perspective*.
Vol. 3 - Indian Perspective ed.
s.l.:s.n.
4. Pathak, C. R., 2003. *Spatial Structure and Processes of Development in India*. Kolkata: Regional Science Association.
5. Sdyasuk , G. & P , Sengupta, 1967. *Economic Regionatisation of India*. Delhi: Census of India.
6. Sharma, T. C., 2003. *India - Economic and Commercial Geography*. New Delhi: Vikas Publications.
7. Sharma, T. C., 2013. *Economic Geography of India*. Jaipur: Rawat Publication.

Semester III
BA/BSc (honours) Geography
Core course
Paper code: HC 602
Name: Regional geography (Theory)
Total Credits = 6

Learning Outcomes:

After the completion of the course, the students will be able to:

1. Identify various regions and the basis of its classification.
2. Apply the models and theories of regional planning in real life
3. Study the regional problems and various regional development projects.

Course content:

1. Definition of Region, Evolution, Types and Need of Regional Planning: Formal, Functional, and Planning Regions and Regional Development. 14
2. Regional Imbalances and Problems of Functional Regions. 12
3. Choice of a Region for Planning: Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning (Agro Ecological Zones). 14
4. Strategies/Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Village Cluster. 14
5. Problem Regions and Regional Planning: Backward Regions and Regional Plans- Special Area Development Plans in India; DVC-The Success Story and the Failures. 14

Reading List

1. Adell, German., 1999. *Literature Review: Theories and Models Of The Peri-Urban Interface:A Changing Conceptual Landscape*. London: Peri-urban Research Project Team, Development Planning Unit, University College London.
2. Bhatt, L. S., 1976. *Micro Level Planning in India*. Delhi: KB Publication.
3. Deshpande , C. D., 1992. *India: A Regional Interpretation*. New Delhi: ICSSR.
4. Dreze , J. & A. , S., 1996. *Indian Development: Select Regional Perspectives*. Oxford: Oxford University Press.
5. Rapley, J., 2007. *Understanding Development: Theory and Practice in the 3rd World*..London: Lynne Rienner.
6. Raza, M., 1988. *Regional Development. Contributions to Indian Geography*.. New Delhi: Heritage Publishers.

Semester III
BA/BSc (honours) Geography
Core course
Paper code: HC 603
Name: Statistical method in geography
(Practical)
Total Credits = 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the basics of data collection and, processing for the meaningful outcomes
2. Understand the selection of proper sampling techniques for the collection of data
3. Put into practice the results obtained for spatial analysis of results and to apply various statistical softwares for the study

Course Content:

1. Sampling: Purposive, Random, Systematic and Stratified. 13
2. Theoretical Distribution: Probability and Normal Distribution. 13
3. Association and Correlation: Rank Correlation, Product Moment Correlation, and Simple Regression, Residuals from Regression. 14
4. Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles); Cross Tabulation; Central Tendency (Mean, Median and Mode) 15
5. Centro-graphic Techniques; Dispersion (Standard Deviation, Variance and Coefficient of Variation). 15

Reading list

1. Mahmood , A., 1977. *Statistical Methods in Geographical Studies*. s.l.:Concept.
1. . Pal , S. K., 1998. *Statistics for Geoscientists*. New Delhi: Tata McGraw Hill.
2. Sarkar, A., 2013. *Quantitative Geography: Techniques and Presentations*. New Delhi: Orient Black Swan Pvt. Ltd..
3. Silk , J., 1979. *Statistical Concepts in Geography*. London: Allen and Unwin.
4. Spiegel, . M. R., n.d. *Statistics*. s.l.:Schaum's Outline Series..
5. Yeates , M., 1974. *An Introduction to Quantitative Analysis in Human Geography*. NewYork.: McGraw Hill.

Semester III
BA/BSc (honours) Geography
Paper code: HG 601
Name: Human and Economic geography
Total Marks: 100
Total Credits = 6

Learning Outcomes:

At the end of the course, the students will be able to:

- 1, Define the nature and scope of human geography
2. Understand the man environment relationship and human adaptation to the environment.
3. Study the economic cooperation among various countries of the world and the major races of the world.

Course contents:

1. Human Geography: Nature and Scope of Human Geography; Branches of Human Geography; approaches to the study of Human Geography. 12
2. Man-environment relationship: Elements of Environment; Physical and Human Environment; Constraints and Opportunities of the Environment; Impact of Environment on Man and Impact of Man on Environment; Environmental Problems. 12
3. Human Adaption to the Environment – Human Adjustment, Mode of Leaving and Emerging Problems in Different Environments: (i) Cold Region-Eskimos, (ii) Hot Region-Bushmen, Mountain Region-Gujjars And (iv) Tropical Rainforest Region-Nagas and Kukis of Manipur. 15
4. Major races – Physical Characteristics and Distribution of the Major Racial Groups (Caucasoid, Mongoloid and Negroid); Origin and Diffusion of Major Racial Groups in the World; Linguistic and Religious Regions in the World. 15
5. Geography of SAARC Countries: detail geographical accounts of the following regions- Rajasthan Desert, Vale of Kashmir, Malabar Coast, Chotanagpur plateau. 15

Reading List

1. Chhokas, K. B., n.d. *Understanding Environment*. s.l.:Sage Pulications.
2. Huntington, E., 1951. *Principles of Human Geography*. New York : John Wiley and Sons Inc..
3. Hussain, M., 1994. *Human Geography*. New Delhi: Rawat Publication.
4. Peter , D., Michael, B., Denis, S. & James, S., 2003. *Human Geography*. Delhi: Pearson Education.
5. Saxena, H. M., n.d. *Environmental Geography*. s.l.:Rawat Publications.
6. Singh, S., 1991. *Environmental Geography*. Allahabad: Pustak Bhawan.
7. Singh, Th. Nabakumar, 2012. *A Textbook of Human Geography*. Delhi: Rajesh Publication.

Semester IV
BA/BSc (honours) Geography
Core course
Paper code: HC 604
Name: Economic geography
Total Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Distinguish different types of economic activities and their utilities.
2. Appreciate the factors responsible for the location and distribution of activities.
3. Examine the significance and relevance of theories in relation to the location of different economic activities.

Course Content:

1. Introduction: Concept and Classification of Economic Activity. 12
2. Factors Affecting location of Economic Activity with Special Reference to Agriculture (Von Thunen Theory); Industry (Weber's theory). 14
3. Primary Activities: Subsistence and Commercial Agriculture, Forestry, Fishing and Mining in India (with special reference to Manipur). 15
4. Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions, Special Economic Zones and Technology Parks. 15
5. Tertiary Activities: Transport, Trade and Services. 12

Reading List

1. Alexander , J. W., 1963. *Economic Geography*. Englewood Cliffs, New Jersey: Prentice-Hall Inc..
2. Bagchi-Sen , S. & Smith, H. L., 2006. *Economic Geography: Past, Present and Future*. s.l.:Taylor and Francis.
3. Coe , N. M., Kelly , P. F. & Yeung, H. W., 2007. *Economic Geography: A Contemporary Introduction*. s.l.:Wiley-Blackwell.
4. Combes , P., Mayer , T. & Thisse , J. F., 2008. *Economic Geography: The Integration of Regions and Nations*. s.l.:Princeton University Press.
5. Durand , L., 1961. *Economic Geography*. s.l.:Crowell.
6. Hodder , B. W. & Lee , R., 1974. *Economic Geography*. s.l.:Taylor and Francis.
7. Wheeler , J. O., 1998. *Economic Geography*. s.l.:Wiley.
8. Willington , D. E., 2008. *Economic Geography*. s.l.:Husband Press.
9. Singh, Th. Nabakumar, 2011. *Geography of Manipur*. Delhi: Rajesh Publication

Semester IV
BA/BSc (honours) Geography
Core course
Paper code: HC 605
Name: Geographical thought Total
Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Distinguish the paradigms in geography discipline through time
2. Understand the geographical thinking in different regions of world
3. Appreciate the past and future trends of world geography in general and Indian geography in particular

Course Content:

1. Paradigms in Geography. 10
2. Pre-Modern: Early Origins of Geographical Thinking with reference to the Classical and Medieval Philosophies. 13
3. Modern- Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America. 13
4. Debates -Environmental Determinism and Possibilism, Systematic and Regional, Ideographic and Nomothetic. 14
5. Trends - Quantitative Revolution and its Impact, Behaviouralism, Systems Approach, Radicalism, Feminism; Towards Post Modernism - Changing Concept of Space in Geography, Future of Geography 17

Reading List

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

Semester IV
BA/BSc (honours) Geography
Core course
Paper code: HC 606
Name: Remote Sensing (Practical)
Total Credits = 6

1. Remote Sensing: Definition and Development; Platforms and Types; Photogrammetry. 13
2. Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS); Sensors. 15
3. Image Processing (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised). 14
4. Satellite Image Interpretation. 12
5. Application of Remote Sensing: Land Use Land Cover. 15

Practical Record: A project file consisting of 5 exercises on using any method on above mentioned themes.

Reading List

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

Semester IV
BA/BSc (honours) Geography
Paper code: HG 602
Name: Industrial Geography
Total Credits = 6

Learning Outcome:

After Studying, Students will be able to:

1. Acquaint with the nature and scope of Industrial geography and theories of location of industries.
2. Classify the typology of Industries and understand the physical, cultural, economic and demographic aspects with reference to mega industrial complexes of India.
3. Assess the impacts of industrialization and industrial policy on India.

Content

1. Nature and Scope of Industrial Geography. 12
2. Types, Geographical Characteristics and Location of Industries (Weber's Theory): Small and Medium Industries, Heavy Industries: Coal and Iron based industries, Rural based Industries Footloose Industry. 16
3. Mega Industrial Complexes: National Capital Region, Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region and Chota Nagpur Industrial Region. 16
4. Impact of Industrialisation in India: Environmental; Social and Economic. 14
5. Industrial Policy of India. 13

Reading List

1. Singh , J., 2003. *India - A Comprehensive & Systematic Geography*. Gorakhpur: Gyanodaya Prakashan.
2. Alexander , J. W., 1979. *Economic Geography*. New Delhi: Prentice Hall of India Pvt. Ltd..
3. Goh Cheng Leong , 1997. *Human and Economic Geography*. New York: Oxford University Press.
4. Gunnar, A., 1967. *Geography of Manufacturing*. New Jersey: Prentice Hall.
5. Miller , E., 1962. *Geography of Manufacturing*. Englewood Cliff, New Jersey: Prentice Hall.
6. Pathak , C. R., 2003. *Spatial Structure and Processes of Development in India*. Kolkata: Regional Science Assoc..
7. Sharma , T., 2013. *Economic Geography of India*. Jaipur: Rawat Publication.
8. Thoman , R. S., Conkling , E. & Yeates , M. H., 1968. *Geography of Economic Activity*. s.l.:McGrawHill Book Company.
9. Tirtha , R., 2002. *Geography of India*. Jaipur & New Delhi: Rawat Publs..
10. Tiwari , R. C., 2007. *Geography of India*. Allahabad: Prayag Pustak Bhawan.
11. Truman , A. & Harishorn , J. W. A., 2000. *Economic Geography*. New Delhi: Prentice Hall of India Ltd..

Semester V
BA/BSc (honours) Geography
Core course
Paper code: HC 701
Name: Population geography
Total Credits = 6

Course Learning Outcomes:

After the completion of the course students will be able to:

1. Learn the role of demography and population studies as distinct fields of human geography
2. Have sound knowledge of key concept, different components of population along with its drivers
3. Examine population dynamics and characteristic with contemporary issues

Course Content:

1. Defining the Field: Nature and Scope; Sources of Data with Special Reference to India (Census, Vital Statistics and NSS). 14
2. Population Size, Distribution and Growth: Determinants and Patterns; Theories of Growth- Malthusian Theory and Demographic Transition Theory. 14
3. Population Dynamics: Fertility, Mortality and Migration - Measures, Determinants and Implications. 14
4. Population Composition and Characteristics: Age-Sex Composition; Rural and Urban Composition and Literacy in India (with special reference to Manipur). 14
5. Contemporary Issues: Ageing of Population; Declining Sex Ratio; HIV/AIDS. 14

Reading List

1. Wilson M. G. A. , 1968 . *Population Geography*. s.l.:Nelson.
2. Newbold K. B. , 2009. *Population Geography: Tools and Issues*. Rowman and Littlefield Publishers : s.n.
3. Bhende , A. & Kanitkar, T., 2000. *Principles of Population Studies*. s.l.:Himalaya Publishing House.
4. Chandna, R., 2010. *Population Geography*.. s.l.:Kalyani Publisher.
5. Chandna, R. C. & Sidhu , M. S., 1980. *An Introduction to Population Geography*. s.l.:Kalyani Publishers.
6. Clarke J. I. , 1965. *Population Geography*. Oxford: Pergamon Press .
7. Lutz W. , Warren C. S. & Scherbov S. , 2004. *The End of the World Population Growth in the 21st Century*. s.l.:Earthscan.
8. Pacione M. , 1986. *Population Geography: Progress and Prospect*. s.l.:Taylor and Francis.
9. Barrett H. R. , 1995 . *Population Geography*. s.l.:Oliver and Boyd.
10. Jones H. R. , 2000 . *Population Geography*. 3rd ed. London: Paul Chapman .
11. Singh, Th. Nabakumar, 2011. *Geography of Manipur*. Delhi: Rajesh Publication.

Semester V
BA/BSc (honours) Geography
Core course
Paper code: HC 702
Name: Field work and research methodology
Total Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Conduct proper field work for the collection of primary data to bring out grassroots realities.
2. Make use of proper tools and surveying methods for measurement in context of collection and processing of data.
3. Prepare a report based on field data.

Course Content:

1. Field Work in Geographical Studies: Role, Value, Data and Ethics of Field-Work. 12
2. Defining the Field and Identifying the Case Study Rural/Urban /Physical / Human/ Environmental. 13
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). 20
4. Use of Field Tools: Collection of Material for Physical and Socio-Economic Surveys. 14
5. Designing the Field Report: Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report Based on Field Visit. 12

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 8000 to 12,000 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*. s.l.:Sage Publications.
2. Dikshit , R. D., 2003. *The Art and Science of Geography: Integrated Readings*. Prentice-Hall of India New Delhi: s.n.
3. Evans , M., 1988. *Participant Observation: The Researcher as Research Tool*. Qualitative Methods in Human Geography, ed. s.l.:s.n.
4. Mukherjee , N., 2002. *Participatory Learning and Action: with 100 Field Methods*. New Delhi: Concept.
5. Mukherjee, S., 2004. *Textbook of Environmental Remote Sensing*. Delhi: Macmillan.
6. Stoddard , R. H., 1982. *Field Techniques and Research Methods in Geography*. s.l.:Kendall/Hunt.
7. Wolcott , H., 1995. *The Art of Fieldwork*. Walnut Creek, CA: Alta Mira Press.

Semester V
BA/BSc (honours) Geography
Paper code: HE 701
Name: Resource Geography
Total Credits = 6

: Learning Outcome:

After Studying, Students will be able to

1. Understand the basic concept of sustainable resource development and differentiate between the Millennium development goals and Sustainable development goals.
2. Assess the issues associated with the Inclusive Development.
3. Explain the sustainable development policies and programmes

Course content

1. Natural Resource: Concept, Classification and Techniques. 13
2. Distribution, Utilisation, Problems and Management of Land Resources and Water Resources. 14
3. Distribution, Utilisation, Problems and Management of Forests and Energy Resources. 14
4. Appraisal and Conservation of Natural Resources. 12
5. Sustainable Resource Development. 12

Reading List

1. Mitchell B. , 1997 . *Resource and Environmental Management*. England: Longman Harlow .
2. Cutter S. N., Renwick H. L. & Renwick W. , 1991 . *Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use*. New York: John Wiley and Sons.
3. Klee G., 1991. *Conservation of Natural Resources*. Englewood: Prentice Hall .
4. Gadgil M. & Guha R., 2005. *The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity*. USA: Oxford University Press.
5. Holechek J. L. C., Richard A. , Fisher J. T. & Valdez R, 2003. *Natural Resources: Ecology, Economics and Policy*. New Jersey: Prentice Hall.
6. Rees J. , 1990. *Natural Resources: Allocation, Economics and Policy*. London: Routledge .
7. Jones G. & Hollier G. , 1997. *Resources, Society and Environmental Management*. London: Paul Chapman.
8. Mather A. S & Chapman K. , 1995. *Environmental Resources*. New York: John Wiley and Sons.
9. Owen S. & Owen P. L., 1991. *Environment, Resources and Conservation*. New York: Cambridge University Press.

Semester V
BA/BSc (honours) Geography
Paper code: HE 701
Name: Settlement Geography
Total Credits = 6

Learning Outcome:

After completion of the course the student will be equip

1. With the basic of settlement planning and the various factors associated with it.
2. Settlement problem in rural and urban areas

Course content

1. Meaning, scope, approaches, and development of settlement geography; Fundamental concepts in settlement geography; Origin, type, pattern, size, and spacing. 15
2. Morphology and houses of rural settlement; Rural service center and market; Rural problems and planning. 15
3. Concept, origin, growth, classification, and morphology of town; Central Place Theory, Rank-Size Rule and Primate City; Urban hierarchy; Urbanization and conurbation; Rural-urban fringe and umland; 20
4. Urban problems and urban slum; Urban planning; Smart City Project of India. 15

Reading list

- Maurya, S.D. (2014): *Settlement Geography*, Sharda Pustak Bhawan, Allahabad.
- Singh, R.Y. (2002): *Geography of Settlements*, Rawat Publications, Jaipur.
- Sinha, V.N.P., Verma, Usha and Sahay, Anuradha (2017): *Introduction to Settlement Geography*, Rajesh Publications, New Delhi.
- Tiwari, R.C. (2020): *Settlement Geography – Rural and Urban Settlement*, Pravalika Publications, Prayagraj.

Semester V
BA/BSc (honours) Geography
Paper code: HE 701
Name: Geography of Health and Well Being
Total Credits =6

Learning Outcome:

1. The course will provide more awareness on health aspects such as identifying the determinants of poor health.
2. Raise awareness issue on the environmental pollution

Course content

1. Perspectives on Health: Definition; Linkages with Environment, Development and Health; Driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality. 15
2. Pressure on Environmental Quality and Health: Human Activities and Environmental Pressure, Land Use and Agricultural Development; Industrialization; Transport and Energy. 15
3. Exposure and Health Risks: Air pollution: Household Wastes; Water; Housing; Workplace. 13
4. Health and Disease Pattern in Environmental Context with Special Reference to India; Types of Diseases and Their Regional Pattern (Communicable and Lifestyle Related Diseases). 13
5. Climate Change and Human Health: Changes in Climate System - Heat and Cold; Biological Disease Agents; Food Production and Nutrition. 13

Reading List

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

Semester V
BA/BSc (honours) Geography
Paper code: HG 701
Name: Agricultural Geography
Total Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Conceptualise the agriculture and its determinants.
2. Get the overview of Indian and World agriculture regions and systems.
3. Have sound knowledge of agriculture revolutions and food security

Course Content:

1. Defining the Field: Introduction, Nature and Scope: Land Use/ Land Cover Definition and Classification.
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 Thuenen, modification and relevance).
5. Agricultural Revolutions in India: Green, White, Blue and Pink.

Reading List

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

Semester VI
BA/BSc (honours) Geography
Core course
Paper code: HC 703
Name: Climatology
Total Credits = 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the elements of weather and climate and its impacts at different scales.
2. Comprehend the climatic aspects and its bearing on planet earth.
3. Understand the oceanic process and availability of resources.

Course Content:

1. Atmospheric Composition and Structure Variation with Altitude, Latitude and Season. 12
2. Insolation and Temperature- Factors and Distribution, Heat Budget, Temperature Inversion. 14
3. Atmospheric Pressure and Winds- Planetary Winds, Forces affecting Winds, General Circulation, Jet Streams. 14
4. Atmospheric Moisture - Evaporation. Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions (Koppen). 14
5. Cyclones- Tropical Cyclones, Extra Tropical Cyclones, Monsoon- Origin and Mechanism. 15

Reading List

1. Barry , R. & Corley , R. J., 1998. *Atmosphere, Weather and Climate*. New York: Routledge.
2. Barry , R. G. & Carleton , A. M., 2001. *Synoptic and Dynamic Climatology*. New York: Routledge.
3. Critchfield, H. J., 1987. *General Climatology*. New Delhi: Prentice-Hall of India.
4. Lutgens, F. K., 2009. *The Atmosphere: An Introduction to Meteorology*. New Jersey: Prentice-Hall.
5. Oliver, J. E. & Hidore, J. J., 2002. *Climatology: An Atmospheric Science*. New Delhi: Pearson Education .
6. Trewartha, G. T. & Horne, L. H., 1980. *An Introduction to Climate*. NY: McGraw-Hill.

Semester VI
BA/BSc (honours) Geography
Paper code: HE 702
Paper Name: Hydrology and Oceanography (Theory)
Credits = 6

Learning Outcome

After the completion of course, the students will have ability to:

1. Understand the basic components of hydrological cycle and comprehend practices of integrated watershed management.
2. Evaluate the water balancing and river basin and water disputes.
3. Study the ocean floor topography, oceanic water movements, salinity and oceanic landform

Course Content:

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; Hydrological Input and Output. 18
2. River Basin and Problems of Regional Hydrology: Characteristics of River Basins, Basin Surface Run-Off, Measurement of River Discharge; Floods and Droughts. 14
3. Ocean Floor Topography and Oceanic Movements: Waves, Currents and Tides. 12
4. Ocean Salinity and Temperature: Distribution and Determinants. 12
5. Coral Reefs and Marine Deposits and Ocean Resources: Types and Theories of Origin; Biotic, Mineral. 14

Reading List

1. Garrison , T., 1998. *Oceanography*. Belmont: Wordsworth Company.
2. Karanth , K., 1988. *Ground Water: Exploration, Assessment and Development*. New Delhi: Tata- McGrawHill.
3. Kershaw , S., 2000. *Oceanography: An Earth Science Perspective*. UK: Stanley Thornes.
4. Pinet , P. R., 2008. *Invitation to Oceanography*. 5th ed. USA, UK and Canada: Jones and Barlett Publishers.
5. Ramaswamy , C., 1985. *Review of floods in India during the past 75 years: A Perspective*. New Delhi: Indian National Science Academy
6. Andrew , D. W. & Stanley , T., 2004. *Environmental Hydrology*. 2nd ed. s.l.:Lewis PublishersCRC Press.
7. Anikouchine , W. A. & Sternberg , R. W., 1973. *The World Oceans: An Introduction to Oceanography*. s.l.:Prentice-Hall.

Semester VI
BA/BSc (honours) Geography
Paper code: HE 702
Paper Name: Biogeography (Theory)
Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Familiarise the dynamics of climate and related theories.
2. Understand of Vegetation as an index of climate.
3. Assess of different aspects of floral and faunal provinces.

Course Content:

1. Definition, scope, branches, and development of biogeography; Approaches to biogeographical studies; Biogeography and related sciences.
2. Ecology, ecosystem and biomes; Biogeographical processes; Evolution, dispersal, and distribution of plants and animal communities; Biogeography regions.
3. Meaning and components of biodiversity; Biodiversity hotspots; Biodiversity conservation; Forest and wildlife conservation in India; Remote sensing in the study of biodiversity

Reading lists

1. Agrawal, L.C. (2018): *Biogeography*, Rawat Publications, Jaipur.
2. Bhattacharyya, N.N. (2006): *Biogeography*, Rajesh Publications, New Delhi.
3. Bryant, Richard H. (2018): *Physical Geography*, Rupa & Co., Mumbai.
4. Lomolino, Mark V. et al (2016): *Biogeography - Biological Diversity Across Space and Time*, 5th Edition, Oxford University Press, New York.
5. Maiti, Parbodh K. and Maiti, Paulani (2017): *Biodiversity - Perception, Peril and Preservation*, 2nd Edition, PHI Learning Private Ltd., New Delhi.
6. Odum, Eugene P. and Barrett, Gary W. (2005): *Fundamentals of Ecology*, 5th Edition, Thomson Asia Pte. Ltd., Singapore and Affiliated East West Press Pvt. Ltd., New Delhi.
7. Singh, Savindra (2020): *Biogeography*, Pravallika Publications, Allahabad.
8. Singh, Savindra (2020): *Environmental Geography*, Pravallika Publications, Allahabad.

Semester VI
BA/BSc (honours) Geography
Paper code: HG 702
Paper Name: Environmental Geography (Theory)
Credits = 6

Learning outcomes:

After the completion of course, the students will have ability to:

1. Understand the dynamic interactive relationship between man and environment.
2. Have sound understanding on distribution, utilization and proper management of natural resources at global level.
3. Make assessment and review of planning and policies related to environment and natural resources.

Course Content:

1. Environmental Geography: Concept and Scope. 13
2. Human-Environment Relationships: Historical Progression; Adaptation in different Biomes. 14
3. Ecosystem: Concept, Structure and Functions. 14
4. Environmental Problems in Tropical, Temperate and Polar Ecosystems. 15
5. Environmental Programmes and Policies: Global, National and Local levels. 15

Reading List

1. Chandna , R. C., 2002. *Environmental Geography*. Ludhiana: Kalyani.
2. Cunningham , W. P. & Cunningham , M. A., 2004. *Principals of Environmental Science: Inquiry and Applications*. New Delhi: Tata McGraw Hill.
3. Goudie , A., 2001. *The Nature of the Environment*. Blackwell: Oxford.
4. Mal , S. & Singh, R. B., 2009. . *Biogeography and Biodiversity*. Jaipur: Rawat Publication.
5. Miller , G. T., 2004. *Environmental Science: Working with the Earth*. Singapore: Thomson BrooksCole.
6. MoEF, 2006. *National Environmental Policy-2006*. s.l.:Ministry of Environment and Forests Government of India.
7. Odum , E. P., 2005. *Fundamentals of Ecology*. India: Ceneage Learning.
8. Singh , R. B., 1998. *Ecological Techniques and Approaches to Vulnerable Environment*. New Delhi: Oxford & IBH Pub..
9. Singh , R. & Hietala , R., 2014. *Livelihood Security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies*. s.l.:Springer.
10. Singh , S., 1997. *Environmental Geography*. Allahabad: Prayag Pustak Bhawan.
11. Singh, M., Singh, R. B. & Hassan, M. I., 2014. *Climate Change and Biodiversity:Proceedings of IGU Rohtak Conference,Volume 1. Advances in Geographical and Environmental Studies*. s.l.:Springer.

Semester VII
BA/BSc (honours) Geography
Paper code: HC 801
Paper Name: Social geography (Theory)
Credits = 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the nature and scope of social geography and relationships of geography with the social system
2. Acquire knowledge on spatial dimensions of social diversity components;
3. Appreciate the social welfare programs related to inclusive and exclusive policies in India.

Course Content:

1. Social Geography: Concept, Origin, Nature and Scope. 10
2. Peopling Process of India: Technology and Occupational Change; Migration. 14
3. Social Categories: Caste, Class, Religion, Race and Gender and their Spatial Distribution in India (with special reference to Manipur). 15
4. Geographies of Welfare and Well-being: Concept and Components - Healthcare, Housing and Education. 15
5. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime. 14

Reading List

1. Casino , V. J. D. Jr., 2009. *Social Geography: A Critical Introduction*. s.l.:Wiley Blackwell.
2. Cater , J. T., 2000. *Social Geography: An Introduction to Contemporary Issues* Hodder. s.l.:Arnold.
3. Holt , L., 2011. *Geographies of Children, Youth and Families: An International Perspective*. s.l.:Taylor & Francis.
4. Panelli , R., 2004. *Social Geographies: From Difference to Action*. s.l.:Sage.
5. Rachel , P. et al., 2001. *Introducing Social Geographies*. s.l.:Oxford University Press.
6. Smith , D. M., 1994. *Geography and Social Justice*. Oxford: Blackwell.
7. Smith , S. J., Pain , R., Marston , S. A. & Jones , J. P., 2009. *The SAGE Handbook of Social Geographies*. s.l.:Sage Publications.
8. Smith, D. M., 1977. *Human geography: A Welfare Approach*. London: Edward Arnold.
9. Sopher , D., 1980. *An Exploration of India*. Ithasa: Cornell University Press.
10. Valentine , G., 2001. *Social Geographies: Space and Society*. s.l.:Prentice Hall.

Semester VII
BA/BSc (honours) Geography
Paper code: HC802
Paper Name: Geomorphology (Theory)
Credits = 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the functioning of Earth systems in real time and analyse how the natural and anthropogenic operating factors affect the development of landforms
2. Distinguish between the mechanisms that control these processes
3. Assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

Course Content:

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|--|----|
| 1. Geomorphology: Nature and Scope. | 12 |
| 2. Earth: Interior Structure and Isostasy. | 12 |
| 3. Earth Movements: Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes. | 14 |
| 4. Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck). | 15 |
| 5. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal. | 20 |

Reading List

1. Bloom , A. L., 2003. *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*. New Delhi.: Prentice-Hall of India.
2. Bridges, E. M., 1990. *World Geomorphology*. Cambridge: Cambridge University Press.
3. Christopherson & Robert , W., 2011. *Geosystems: An Introduction to Physical Geography*. 8th ed. s.l.:Macmillan Publishing Company.
4. Kale , V. S. & Gupta , A., 2001. *Introduction to Geomorphology..* Hyderabad: Orient Longman.
5. Knighton , A. D., 1984. *Fluvial Forms and Processes*. London: Edward Arnold Publishers.
6. Richards , K. S., 1982. *Rivers: Form and Processes in Alluvial Channels*. London: Methuen.
7. Selby, M. J., 2005. *Earth 's Changing Surface*. Indian Edition ed. s.l.:OUP.
8. Skinner , Brian , J. & Stephen , C. P., 2000. *The Dynamic Earth: An Introduction to physical Geology*. 4th ed. s.l.:John Wiley and Sons.
9. Thornbury , W. D., 1968. *Principles of Geomorphology..* s.l.:Wiley.

Semester VII
BA/BSc (honours) Geography
Paper code: HE 801
Paper Name: Urban Geography (Theory)
Credits = 6

Learning Outcome:

After the completion of course, the students will have ability to:

1. Understand the fundamentals and patterns of urbanization process
2. Learn the functional classification of cities and Central Place Theory
3. Know contemporary problems of Delhi, Mumbai, Kolkata and Chennai

Course Content:

1. Urban Geography: Introduction, Nature and Scope. 14
2. Patterns of Urbanization in Developed and Developing Countries. 14
3. Functional Classification of Cities: Quantitative and Qualitative Methods. 14
4. Urban Issues: Problems of Housing, Slums, Civic Amenities (Water and Transport). 14
5. Case studies of Delhi, Mumbai, Kolkata, Chennai and Chandigarh with reference to Land use and Urban Issues. 14

Reading List

1. Fyfe N. R. & Kenny J. T. , 2005. *The Urban Geography*. Routledge: Reader.
2. Graham S. & Marvin S. , 2001. *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*. s.l.:Routledge.
3. Kaplan D. H. , Wheeler J. O. & Holloway S. R. , 2008. *Urban Geography*. s.l.:John Wiley.
4. Knox P. L. & McCarthy L. , 2005. *Urbanization: An Introduction to Urban Geography*. New York: Pearson-Prentice Hall
5. Pacione M. , 2009. *Urban Geography: A Global Perspective*. s.l.:Taylor and Francis.
6. Singh R. B. , 2015. *Urban Development, Challenges, Risks and Resilience in Asian Megacities* *Advances in Geographical and Environmental Studies*. s.l.: Springer.
7. Ramachandran R., 1992 . *The Study of Urbanisation*. Delhi : Oxford University Press .
8. Ramachandran R. , 1989 . *Urbanisation and Urban Systems of India*. New Delhi: Oxford University Press .
9. Sassen S., 2001 . *The Global City: New York, London and Tokyo*. s.l.:Princeton University Press.
10. Singh , R. B., 2001. *Urban Sustainability in the Context of Global Change*. s.l.:Science Pub., Inc. Enfield (NH), USA and Oxford & IBH Pub.New Delhi..
11. Hall T., 2006. *Urban Geography*. s.l.:Taylor and Francis.

Semester VII
BA/BSc (honours) Geography
Paper code: HE 801
Paper Name: Rural Geography (Theory)
Credits = 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Appreciate the concepts, needs and various approaches to rural development;
2. Understand the strong economic bases of rural areas of India;
3. Appreciate the area based and target group based approaches and provision of services to rural development.

Course Content:

1. Defining Development: Inter- dependence of urban and rural sectors of the economy; Need for rural development; Gandhian approach of rural development. 13
2. Rural Economic Base: Panchayati raj system, agriculture and allied sectors, seasonality and need for expanding non - farming activities, co- operatives, and PURA. 14
3. Area Based Approach to Rural Development: Drought prone area programmes, (DPAP), PMGSY. 13
4. Target Group Approach to Rural Development: SJSY, MNREGA, Jan Dhan Yojana and Rural connectivity. 15
5. Provision of Services – Physical and socio – economic access to elementary education and primary health care and micro credit. 14

Recommended Books:

- Anand, Subhash (2013): *Dynamics of Rural Development*, Research India Press, Delhi.
- Gilg, A.W. (1985): *An Introduction to Rural Geography*, Edwin Arnold, London.
- Krishnamurthy, J., (2000): *Rural Development - Problems and Prospects*, Rawat Pubs., Jaipur.
- Lee, D.A.. and Chaudhri, D.P., eds.(1983): *Rural Development and State*, Methuen, London.
- Misra, R.P., and Sundaram, K.V., eds.(1979): *Rural Area Development – Perspectives and Approaches*, Sterling, New Dwlhi.
- Misra, R.P., ed.(1985): *Rural Development – Capitalist and Socialist Paths, Vol. 1* , Concept, New Delhi.
- Palione, M.(1984): *Rural Geography*, Harper and Row, London.
- Ramachandran, H., and Guimaraes, J.P.C. (1991): *Integrated Rural Development in Asia-Learning from Recent Experience*, Concept Publishing, New Delhi.
- Robb, P. (1983): *Rural South Asia – Linkages, Change and Development*, Curzon Press.
- Singh, R.B. (1985): *Geography of Rural Development*, Inter India, New Delhi.
- UNAPDI (1986): *Local Level Planning and Rural Development Alternative Strategies*, (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publications

Semester VII
BA/BSc (honours) Geography
Paper code: HE 801
Paper Name: Geography of Northeast India and Manipur (Theory)
Credits = 6

Learning Outcomes:

After the completion of the course the students will be able to:

Acquire basic geographical knowledge of the Northeast India and Manipur.

Understand the population pattern, resource distribution and industrial development of the region.

Explore the tourism potential and other prospect of the region.

Course contents:

- 1, Physical: Location, physiographic division, climate, soil, and natural vegetation. 13
2. Population: Distribution and growth; social: Race, caste, religion, language, and tribes. 14
3. Agriculture: Agriculture production of rice, wheat, cotton, and sugarcane; Agricultural Regionalisation – R.L. Singh Scheme, Agro-Climatic Regions, and Agro-Ecological Regions; Economic: Distributions and production of iron ore, coal and petroleum; Industry – Iron and steel, textiles, automobile, information technology and industrial regions; Transport system. 18
4. North East India – Administrative divisions, physical features, climate, drainage, vegetation, population, settlement, agriculture, industry, transport, environmental problems, regional development, and geopolitical problems. 15
5. Manipur – Location, physical features, climate, landslides, drainage, soil, vegetation, agriculture, industry, tourism, and transport system. 14

Recommended Books:

North East India

- Barad, Gomit K. (2018): *Geography of North East India*, Pacific Book International. Bhattacharyya, N.N. (2018): *North East India – A Systematic Geography*, Rajesh Publications, New Delhi.
- Devee, Geeta and Das, Puspanjalee (2018): *North East India – A Comprehensive Geography*, EBH Publishers (India), Guwahati.
- Taher, M. (2020): *Geography of North East India*, Mani Manik Prakash, Guwahati.

Manipur

- Bhattacharyya, N.N. (2006): *Manipur – Land, People and Economy*, Rajesh Publications, New Delhi.
- Laiba, Dr. M.T. (2018): *Geography of Manipur*, Imphal.
- Singh, Dr. Th. Nabakumar (2014): *Geography of Manipur*, Rajesh Publications, New Delhi.

Semester VII
BA/BSc (honours) Geography
Paper code: HG 801
Paper Name: Sustainable resource development
Credit 6

Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand difficulties in defining the components of sustainable development;
2. Distinguish the patterns of regional development of the world and the need for sustainable development plan;
3. Appreciate the efforts and initiatives of the Governments in reducing the levels of poverty and inequality among the people of various countries.

Course Content:

1. Sustainable Development: Definition, Components. Limitations and Historical Background. 12
2. The Millennium Development Goals: National Strategies and International Experiences. 13
3. Sustainable Regional Development: Need and examples from different Ecosystems. 13
4. Inclusive Development: Education, Health; Climate Change; The Role of Higher Education in Sustainable Development; The human right to health; Poverty and disease; The Challenges of Universal Health Coverage; Policies and Global Cooperation for Climate Change. 15
5. Sustainable Development Policies and Programmes: The proposal for SDGs at Rio+20; Illustrative SDGs; Goal-Based Development; Financing for Sustainable Development; Principles of Good Governance; National Environmental Policy; CDM. 15

Reading List

1. Agyeman , J., Robert D. Bullard & Bob Evans , 2003. *Just Sustainabilities: Development in an Unequal World*. London: Earthscan.
2. Baker , S., 2006. *Sustainable Development*. Milton Park Abingdon Oxon,New York: Routledge.
3. Lohman , L., 2003. *Re-imagining the Population Debate*. Briefing: Corner House.
4. Merchant, C., 1994. *Ecology*. Atlantic Highlands, NJ: Humanities Press.
5. Robbins, P., 2004. *Political Ecology: A Critical Introduction*. s.l.:Blackwell Publishing.
6. Singh , R. B., 2001. *Urban Sustainability in the Context of Global Change*. s.l.:Science Pub., Inc. Enfield (NH), USA and Oxford & IBH Pub.New Delhi..

Semester VIII
BA/BSc (honours) Geography
Paper code: HC 803 (theory)
Paper Name: Research methodology in geography
Credits = 6

Learning Outcomes:

After the completion of the course students will be able to:

1. Conduct geographical enquiry and acquire knowledge on various research methods in geography.
2. Collect geographical data and analyzes them using various methods
3. Write research report

Course Content:

1. Geographic Enquiry: Definition and Ethics; Framing Research Questions, Objectives and Hypothesis; Literature Review; Preparing Sample Questionnaire. 15
2. Data Collection: Type and Sources of Data; Methods of Collection; Input and Editing. 14
3. Data Analysis: Qualitative Data Analysis; Quantitative Data Analysis; Data Representation Techniques. 14
4. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract. 14
5. Preparation of Research Report. 10

Reading lists

1. Creswell , J., 1994. *Research Design: Qualitative and Quantitative Approaches*. s.l.:Sage Publications.
2. Dikshit , R. D., 2003. *The Art and Science of Geography: Integrated Readings*. Prentice-Hall of India New Delhi: s.n.
3. Evans , M., 1988. *Participant Observation: The Researcher as Research Tool*. Qualitative Methods in Human Geography, ed. s.l.:s.n.
4. Mishra, R. P., 2002. *Research Methodology*. New Delhi: Concept Publications.
5. Mukheriee , N., 1993. *Participatory Rural Appraisal: Methodology and Application*. New Delhi: Concept.
6. Mukherjee , N., 2002. *Participatory Learning and Action: with 100 Field Methods*. New Delhi: Concept.
7. Stoddard , R. H., 1982. *Field Techniques and Research Methods in Geography*. s.l.:Kendall/Hunt.

Semester VIII
BA/BSc (honours) Geography
Paper code: HE 802
Paper Name: Fluvial Geomorphology (Theory)
Credits = 6

Learning Outcomes:

After the completion of the course, students will be able to:

1. Acquire knowledge about Fluvial Geomorphology and fluvial processes.
2. Study drainage basin as geographic unit.
3. Understand the ways in which human being adjust to fluvial landforms and techniques of studying fluvial environment.

Course Content:

1. Fluvial Geomorphology and Geography; hydrological cycle and subcycle; drainage pattern evolution; limits of drainage development; channel changes with time. 14
2. Fluvial Processes – Streamflow fluctuation, mechanics of flow, thresholds of erosion, sediment transport and sediment deposition. 14
3. Channel Form Adjustment – Characteristics of adjustment, cross-sectional form, bed configuration, channel pattern, and channel gradient and the longitudinal profile. 14
4. Drainage basin as a fundamental geomorphic unit. Drainage basin form and process; drainage basin morphometry; morphometric interrelations. 14
5. Applied fluvial geomorphology; human adjustment to flood plain, alluvial fans and deltaic environments (case studies). Effects of reservoirs on fluvial systems. Remote sensing and GIS application to fluvial environments 14

Recommended Books:

1. Charlton, RO (2007): *Fundamentals of Fluvial Geomorphology*, Routledge,
2. Oxfordshire. Chorley, R.J. (ed) (1973): *Introduction of Fluvial Processes*, Methuen & Co., London, 1973
3. Coates, D.R. and Vitek J.I. (1980): *Thresholds in Geomorphology*. George Allen & 4. 4. Unwin, London.
4. Gleick, P.H. ed. (1993): *Water in Crisis*, Oxford University Press, New York.
5. Gregory, K.J. (1977): *River Channel Changes*, John Wiley & Sons, New York.
6. Gregory, K.J. and Walling, D.E. (1985): *Drainage Basin : Forms and Processes – A*

Semester VIII
BA/BSc (honours) Geography
Paper code: HE 801
Paper Name: Surveying and Topographical Sheet Interpretation (Practical)
Credits = 6

Learning Outcomes:

After the completion of the course the students will be able to:

1. Conduct various surveys like chain and tape, plane table, dumpy, theodolite and total station.
2. Interpret topographical map and Indian Toposheets.

Course Content:

Unit – I. Meaning, objectives, and classification of surveying; Survey by chain, compass, plane table, dumpy level, theodolite, and total station. 14

Unit –II Meaning of topographical map; Indian topographical sheets; Method of interpretation of topographical sheet; Interpretation of Indian topographical sheets (1: 50,000) of hilly, plateaus and plain regions in respect of relief, drainage, settlement, and transport and communication. 30

Record Book

Viva- Voce

Recommended Books:

Surveying

- Agor, R. (2015): *A Textbook of Surveying and Leveling*, Khanna Publishers, New Delhi.
- Anderson, James M. and Mikhael, Edward M.(2015): *Surveying – Theory and Practice*, 7th Edition, McGraw Hill Education (India), Pvt. Ltd., New Delhi.
- Duggal, S.K. (2019): *Surveying Vol. 1*, 5th Edition, McGraw Hill Education (India) Pvt. Ltd., New Delhi.
- Gupta, R.K. and Chander, Subhash (2014): *Principles of Geoinformatics*, 5th Edition, Jain Brothers, New Delhi.
- Punmia, Dr. B.C. et al (2018): *Surveying Vol.1.*, Laxmi Publications (P) Ltd., New Delhi.
- Subramanian, R. (2012): *Surveying and Leveling*, Oxford University Press, New Delhi.

Toposheet Interpretation

- Khan, Md. Zulfequar Ahemad (1998): *Text Book of Practical Geography*, Concept Publishing Co., New Delhi.
- Sarkar, Ashis (2015): *Practical Geography – A Systematic Approach*, 3rd Edition Orient Black Swan, New Delhi
- Singh, Dr. L.R. (2006): *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.
- Singh, Gopal (1996): *Mapwork and Practical Geography*, Vikas Publishing House Pvt. Ltd.,

Semester VIII
BA/BSc (honours) Geography
Paper code: HE 802
Paper Name: Dissertation (Theory)
Credits = 6

Learning Outcomes:

After the completion of the course, students will be able to:

1. Prepare dissertation report on any given topics

Course Content:

1. Each student will prepare an individual report based on primary and secondary data collected during fieldwork. 14
2. The duration of the fieldwork should not exceed 10 days and the fieldwork should be done within the Manipur State. 14
3. The word count of the report should be about 8000 to 12,000 excluding figures, tables, photographs, maps, references and appendices. 14
4. Figures, tables, photographs and maps should be included in the report. 14
5. One copy of the report printed on A4 size paper with one and half space between lines and margins of 2.5 centimetres (1 inch) on the up, down and right sides and 4 centimetres (1.5 Inches) on the left side should be submitted in soft /hard binding. 15

Field Report **80 Marks**

Viva- Voce **20 Marks**