

ORIENTAL COLLEGE (AUTONOMOUS) IMPHAL

Choice Based Credit System

B.A. /B.Sc. Geography (Honours) Syllabus

Programme Objectives: The Choice Based Credit System (CBCS) of Undergraduate Degree in Geography (Hons.) is designed to offer a uniform structure and an array of options to the undergraduate curriculum. It offers a wide choice of papers covering theoretical, practical and applied aspects of the discipline. It is designed to cover both traditional and contemporary framework of study, thus giving a wide scope to the learners to apply their knowledge and skills in real scenarios. Teaching-learning methods have also given emphasis more on demonstrative techniques than the traditional lecture mode.

The main objective of the programme is to develop an aptitude towards erudition that is rich in its content as well as to deliver the needs of the contemporary society and industry. The curriculum has been carefully designed to include conceptual, practical, experimental and skill building component so that the learners may acquire the required quality for job and higher studies.

This curriculum encompasses the evolution of the subject right from the accounts of travelers and explorers regarding space, place and people to the progression towards establishment of the discipline geography in natural and social sciences. The core and fundamental branches of the discipline cover the two broad spectrums of physical and human geography, along with the interface branch of environmental studies.

Practical & Application Oriented: To enrich the process of knowledge assimilation varied tools and technique oriented papers have also been incorporated in the curriculum. It includes traditional mapping and the use of sophisticated methods of data collection and processing through exhaustive field work, use of basic statistics and Geographic Information System.

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.

Academic Attributes:

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

- **Disciplinary Knowledge:** Students gain 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 develop 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, Rural Development, Resource Geography 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 issues. The courses are 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 collection 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 on the theories and models, developing hypothesis and learning their testing. Many of the courses in geography which are truly scientific in nature will generate scientific reasoning aptitude and also skills to look towards new approaches.
- **Information and Digital Library:** The student of geography is always encouraged to explore beyond the basic textbooks. Besides availability of all types of reading material, a student needs to invest in learning and consulting from various open source library to expand the vista of their knowledge acquiring capability. Since it is a subject that does not completely rely on traditional text book oriented studies but has to delve deeper and research enough to keep pace with the ever-changing world. Thus the World Wide Web has proved to be very useful in keeping oneself apprised and continuously update ones knowledge base. The usage of open source software, tools and open access reading material are part of the curriculum which will train them for digital world.
- **Multicultural Competence:** Geography is a discipline which is not limited to any specific place or space. Its identity is based on multi-plural, multi-cultural and multi sited- ethnography. As a subject it emphasizes on regional and cultural studies which involves detailed understanding of places and perceptions. Also as a disciplinarian, it allows the learner to learn about both their own culture as well as those of their distant counterparts. This diversified knowledge also helps them to respect all fellows following varied community norms, traditions and practices. Field studies have been much helpful in introducing multicultural competencies to students of geography.
- **Moral and ethical awareness:** In the age of fast technological changes and in the attempt to obtain an increased level of comforts. Today is the age in which the social order of the national state, class, ethnicity and traditional family needs more attention. In this scenario, the Geography curriculum attempts to explain rights and duties not only towards working and fellow citizens but also towards nature and resources. The student will appreciate the balanced interactions, personal space, and common/community space. Geography will play its part in nurturing values and ethics in future citizens of the world.
- **Leadership Readiness/ Quality:** A good leader needs to have the knowledge, rational thinking and ready to act at the time of need. Geography encourages to have descriptive and explanatory knowledge of one's surroundings and the globe as a whole, it develops rational thinking and prepares the students to think about alternative social, economic and environmental futures. So a geography student will be a good leader and will contribute in different capacities relevant for all at all stages of human life. So the basic knowledge and the tools Geographer learns help them in their future life and the process of learning will continue throughout life.

PROGRAMME LEARNING OUTCOMES IN COURSE

- i. 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.
- ii. 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 and disaster studies and mapping methods.

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

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

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

vi. After the completion of the course, students will also gain knowledge of various technological applications through study of Remote Sensing and Geographic Information Science.

vii. The curriculum also provides an opportunity to digitally produce maps and modeling applications.

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

ix. 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.

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

xi. The learners can greatly contribute to the subject through teaching, research and field oriented studies.

xii. The students will also be able to pursue a career in spatial planning, sustainable practices, environmental and resource management.

xiii. The geography graduates will be well informed citizens who can play immense role in the civil society too.

xiv. They will be able to pursue wide range of careers as planners, administrators, academicians, and managers.

Teaching-Learning Process:

- Classroom discussions and interactive learning.
- Audio visual presentation/ teaching methods.
- Presentation by students.
- Individuals/group training to work with software.
- Developing research skills through assignments/projects.
- Conduct theme based group activities.
- Developing Effective communication skills through group discussion.
- Beyond classroom teaching/learning through field excursions.
- Writing of reports/project.

CBCS Hons. Degree Programme Course Structure for 1st Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
First	2 papers x 6 credit each			1 paper x 6 credit (any one)		1papers x 4 credit each
	Code	Title				Paper Code
	GEG-HC 1016	Geomorphology		GEG-HG 1016 (Physical Geography)		GEN / MAN (MIL.) -1014
	GEG-HC 1026	Cartography		Geg-HG 1026 (Disaster Management)		
				Geg-HG 1036 (Geography of Tourism)		

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.

Semester 1
Paper Code: GEG-HC1016
Paper Name: Geomorphology (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To understand the associations between geomorphologic landforms, concepts and processes.
2. To critically evaluate and connect information about geomorphic processes.
3. To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes

Learning Outcomes:

After completion of this course, students will be able to

1. understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects 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. | 10 |
| 2. Earth: Interior Structure and Isostasy. | 15 |

3. Earth Movements: Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes. 25
4. Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck). 25
5. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal. 25

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.

Semester 1

Paper Code: GEG-HC1026

Paper Name: Cartographic Techniques (Practical)

Total Credits: 6

Course Objectives:

1. Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions;
2. Develop an understanding of the concepts regarding scale, map projections to suit map purposes;
3. Better understand the techniques of interpretation of topographical and weather maps

Learning Outcome:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain how maps work, conceptually and technically and will be able to understand science and art of cartography.
2. Recognize the benefits and limitations of some common map projections and their use.
3. Understand and perform interpretation of topographical maps and weather maps.

Course Content:

1. Cartography: Nature and Scope. 10
2. Scales: Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales. 15
3. Map Projections: Classification, Properties and Uses; Graphical Construction of Polar Zenithal Stereographic, Bonne's and Mercator's Projections, and reference

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| to Universal Transverse Mercator (UTM) Projection. | 30 |
| 4. Topographical Map: Interpretation of a Mountain area with the help of Cross and Longitudinal Profiles. | 25 |
| 5. Slope Analysis: Wentworth's method; Smith's Relative Relief Method. | 20 |

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

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

Paper Code: GEG-HG1016

Paper Name: Physical Geography (Theory)

Total Credits: (5+1) = 6

Course objectives:

1. To understand the various physical components of the earth
2. To identify the relationship of the various physical components
3. To provide a theoretical and empirical framework on landscape evolution

Learning outcomes:

- 1) This paper shall enable the students to understand the basic concepts, definition and scope of physical geography.
- 2) This course shall enable the students to comprehend the dynamics of atmosphere, lithosphere and fluvial erosion cycle.
- 3) Students shall be well-versed with hydrological processes, ocean bottom relief, tides and currents.

Course Content:

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| 1. Physical Geography: Definition and Scope; Components of Earth System. | 10 |
| 2. Atmosphere: Composition and Vertical Structure; Heat Balance; Global Circulation Pattern; Wind- types. | 20 |
| 3. Lithosphere: Internal Structure of the Earth. | 10 |
| 4. Endogenetic and Exogenetic processes; Works of River, Winds, Fluvial cycle of Erosion – W.M.Davis. | 30 |

5. Hydrosphere: Hydrological Cycle, Ocean Bottom Relief Features, Tide and Currents – Indian Ocean, Oceanic Deposits. 30

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
Paper Code: GEG-HG1026
Paper Name: Disaster Management (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Understanding the basic concepts of disaster management
2. Detailed analysis about the different types of disasters in India
3. Evaluating the various dimensions of disaster management through field works

Learning Outcomes:

1. In depth understanding about the various disasters in the country
2. It will provide thorough understanding about the human responses to the disasters
3. It will give an in-depth knowledge about the disasterscapes through the study

Course content

1. Disasters: Definition and Concepts: Hazards, Disasters; Risk and Vulnerability; Classification. 15
2. Disasters in India: (a) Flood: Causes, Impact, Distribution and Mapping; Landslide: Causes, Impact, Distribution and Mapping; Drought: Causes, Impact, Distribution and Mapping. 25
3. Disasters in India: (b) Earthquake and Tsunami: Causes, Impact, Distribution and Mapping; Cyclone: Causes, Impact, Distribution and Mapping. 20
4. Manmade disasters: Causes, Impact, Distribution and Mapping (with special reference to Manipur). 20
5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post Disasters. 20

Reading List

1. Government of India, 1997. *Vulnerability Atlas of India*. New Delhi: Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A., 2010. *Vulnerable India: A Geographical Study of Disasters*. New Delhi: Sage Publication.
3. Modh, S., 2010. *Managing Natural Disaster: Hydrological, Marine and Geological Disasters*. Delhi: MacMillan .
4. Singh , J., 2007. *Disaster Management Future Challenges and Opportunities*. New Delhi: I.K. International Pvt. Ltd..
5. Singh, R. B., 2005. Risk Assessment and Vulnerability Analysis. In: New Delhi: IGNOU.
6. Singh, R. B., 2006. *Natural Hazards and Disaster Management: Vulnerability and Mitigation*. New Delhi: Rawat Publications.
7. Sinha, A., 2001. *Disaster Management: Lessons Drawn and Strategies for Future*. New Delhi: New United Press.
8. Stoltman, J. P. & et al, 2004. *International Perspectives on Natural Disasters*,. Dordrecht: Kluwer Academic Publications.

Semester 1
Paper Code: GEG-HG1036
Paper Name: Geography of Tourism (Theory)
Total Credits: (5+1) = 6

Course Objective:

1. To Understand the various dimensions of geography of tourism and pilgrimage,.
2. To make aware the students with national and international trends and patterns of tourism with its impacts.
3. To critically evaluates the infrastructure in tourism in India focusing with having case studies along with the reviewing the tourism policy in country.

Learning Outcomes:

After studying, students will be able to:

1. Equip with a basic understanding of nature and scope, trends and patterns of various types of tourisms.
2. Have sound knowledge on geographical, environmental and socio-cultural aspects of tourism in India.
3. Apply the principles of Geo-tourism and analyse the prospects and problems associated with pilgrimage tourism.

Course content:

1. Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations; Geographical Parameters of Tourism by Robinson. 20
2. Type of Tourism: Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage. 20
3. Recent Trends of Tourism: International and Regional; Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings Incentives Conventions and Exhibitions (MICE). 30
4. Impact of Tourism: Economy; Environment; Society. 10
5. Tourism in India: Tourism Infrastructure; Case Studies of The Himalayas (particularly North Eastern Region) Desert and Coastal Areas; National Tourism Policy. 20

Reading List

1. Kamra, K. K. & Chand, M., 2007. *Basics of Tourism: Theory, Operation and Practise*. Pune: Kanishka Publishers.
2. Centre for Tourism Research and Development, n.d. *Tourism Recreation and Research Journal*, Lucknow: Center for Tourism Research and Development.
3. Dhar, P. N., 2006. *International Tourism: Emerging Challenges and Future Prospects*. New Delhi: Kanishka.
4. Hall, M. & Stephen, P., 2006. *Geography of Tourism and Recreation - Environment, Place and Space*. London: Routledge.
5. Page, S. J., 2011. *Tourism Management: An Introduction*. USA: Butterworth- Heinemann.
6. Raj, R. & Nigel, D., 2007. *Morpeth Religious Tourism and Pilgrimage Festivals Management : An International Perspective*, Cambridge: CABI.
7. Singh , J., 2014. *Eco-Tourism*. New Delhi: I.K. International Pvt. Ltd..

CBCS Hons. Degree Programme Course Structure for 2nd Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
Second	2 papers x 6 credit each			1 paper x 6 credit each		1 paper x 6 credit
	Code	Title				Paper Code
	GEG-HC 2016	Human Geography		GEG-HG 2016 (Human Geography)		EVS-2014
	GEG-HC 2026	Thematic Cartography		GEG-HG 2026 (Spatial Information Technology)		
				GEG-HG 2036 (Regional Development)		

[Core=Hons. Course (14 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**

DSE= Discipline specific elective course (4 papers of 6 credit each) - **Course Code: HE**

GE= Generic elective course (4 papers of 6 credit each) - **Course Code: HG**

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.]

Semester II

Paper Code: GEG-HC2016

Paper Name: Human Geography (Theory)

Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of human geography and cultural landscape.
2. Detailed analysis of population growth and distribution.
3. Understanding of the relationship between population and resource.

Learning Outcomes:

1. Detailed exposure of contemporary relevance of cultural landscape.
2. In-depth knowledge of space and society of cultural regions.
3. Understanding the settlement pattern and population resource relationship.

Course content:

1. Introduction: Defining Human Geography; Nature and Scope of Human Geography; Contemporary Relevance. 10
2. Space and Society: Cultural Regions: Race; Religion and Language. 20
3. Population: Population Growth and Distribution: Population Composition; Demographic Transition Theory. 30
4. Settlements: Types of Rural Settlements; Classification of Urban Settlements; Trends and Patterns of World Urbanization. 30

5. Population – Relationship of Man and Environment. 10

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

Paper Code: GEG-HC2026

Paper Name: Thematic Cartography (Practical)

Total Credits: 6

1 Course Objectives:

1. Create thematic maps through thoughtful application of Cartographic conventions;
2. Enhance understanding of the concepts regarding thematic mapping techniques
3. Better understand preparation and interpretation of thematic maps

Learning Outcomes:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain how maps work, conceptually and technically and will be able to understand science and art of cartography.
2. Recognize the benefits and limitations of Diagrammatic Data Presentation.
3. Understand and perform interpretation of thematic maps.

Course content:

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| 1. Maps: Classification and Types; Principles of Map Design. | 10 |
| 2. Diagrammatic Data Presentation: Line, Bar, Circle, Square, Cuboid and Sphere. | 20 |
| 3. Thematic Mapping Techniques: Properties, Uses and Limitations; Areal Data- Choropleth, Dot, Proportional Circles; Point Data- Isopleths. | 30 |
| 4. Cartographic Overlays: Point, Line, Areal Data and Ergo graph. | 20 |
| 5. Thematic Maps: Preparation and Interpretation; Age-Sex Pyramid. | 20 |

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

Reading List

1. Cuff , J. D. & Mattson , M. T., 1982. *Thematic Maps: Their Design and Production*. s.l.:Methuen Young Books.
2. Dent , B. D., Torguson , J. S. & Holder, T. W., 2008. *Cartography: Thematic Map Design*. 6th ed. s.l.:Mcgraw-Hill Higher Education.

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

Semester II
Paper Code: GEG-HG2016
Paper Name: Human Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of human geography and cultural landscape.
2. Detailed analysis of population growth and distribution.
3. Understanding of the relationship between population and resource.

Learning Outcomes:

1. Detailed exposure of contemporary relevance of cultural landscape.
2. In-depth knowledge of space and society of cultural regions.
3. Understanding the settlement pattern and population resource relationship.

Course content:

1. Human Geography: Nature and Scope of Human Geography; Branches of Human Geography; approaches to the study of Human Geography. 15
2. Development of Human Geography: From Eratosthenes to Humboldt and Ritter; Schools of Human Geography: (i) German School (ii) French School (iii) British School (iv) American School and (v) Indian School. 30
3. 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. 20
4. 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. 20
5. 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

Reading List

1. Chhokas, K. B., n.d. *Understanding Environment*. s.l.:Sage Publications.
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 II
Paper Code: GEG-HG2026
Paper Name: Spatial Information Technology (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. The main objective of this course is to give students an insight on the concepts of spatial information technology.
2. The paper discusses the concept, historical developments, functioning and application of spatial information technology in detail.

Learning Outcomes:

Upon successful completion of the course, the students:

1. will be familiar with the concept, components of SIT.
2. will gained knowledge on various data sources, structures, and their interpolation and modeling.
3. will acquire in-depth knowledge of various functions applied in SIT.
4. will gather detailed information on the application of SIT in various fields of mapping

Course content:

1. Introduction: Definitions, Concept and Historical Development. 15
2. Spatial Information/Data: Web data sources; Registration and projection; Data structures; Data Interpolation and Modeling. 25
3. Working of Spatial Information System. 15
4. Functions of Spatial Information System: Information Retrieval; Topological Modeling; Networks, Overlay; Data Output. 25
5. Application of Spatial Information Technology. 20

Reading List

1. H. , Samet, 1990. *The Design and Analysis of Spatial Data Structures*. Reading, MA: Addison-Wesley.
2. H. , Samet, 1995. *Spatial Data Structures in Modern Database Systems: The Object Model, Interoperability and Beyond*. W. Kim ed. Reading, MA: Addison-Wesley/ACM Press.
3. H. , Samet. & W. G. Aref., 1995. *Spatial Data Models and Query Processing in Modern Database Systems The Object Model, Interoperability and Beyond*. W.Kim ed. Reading, MA: Addison-Wesley/ACM Press.
4. C. Esperança and H. Samet, *An overview of the SAND spatial database system, to*

appear in *Communications of the ACM*, 1997. <http://www.cs.umd.edu/-hjs/pubs/sandprog.ps.gz>

5. G. Hjaltason and H. Samet. *Ranking in Spatial Databases in Advances in Spatial Databases 4th Symposium*. SSD'95, M. J. Egenhofer and J. R. Herring, Eds., Lecture Notes in Computer Science 951, Springer-Verlag, Berlin. 1995, <http://www.cs.umd.edu/-hjs/pubs/incnear.ps>

Semester II
Paper Code: GEG-HG2036
Paper Name: Regional Development (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To understand the concept of Region and Regional Planning.
2. To familiarize the students with Theories and Models for Regional Planning.
3. To develop understanding about concept of Development, Sustainable Development and different programmes and policies.

Learning Outcomes:

After studying, students will be able to:

1. Conceptualize the Regional Planning and its theories.
2. Get the overview of Sustainable Regional Development.
3. Have sound knowledge to Sustainable Development Policies and Programmes.

Course content:

1. Definition of Region, Evolution, Types and Need of Regional Planning: Formal, Functional, and Planning Regions and Regional Development. 20
2. Regional Imbalances and Problems of Functional Regions. 15
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). 25
4. Strategies/Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Village Cluster. 20
5. Problem Regions and Regional Planning: Backward Regions and Regional Plans- Special Area Development Plans in India; DVC-The Success Story and the Failures. 20

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.
7. Schmidt-Kallert, . E., 2005. *A Short Introduction to Micro-Regional Planning*. s.l.:Food and Agriculture Organization of the United Nations (FAO).
8. Sdyasuk , G. & P , S., 1967. *Economic Regionalisation of India*. Delhi: Census of India,GOI.
9. Ses, A., 2000. *Development as Freedom*. Toronto: Random House.

CBCS Hons. Degree Programme Course Structure for 3rd Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
C o r e = T h i r d H o n s . D i	14 papers x 6 credit each		4 papers x 6 credit each	4 papers x 6 credit each	2 papers x 4credit each	2papers x 4credit each
	Code	Title				
	Geg-HC 3016	Climatology		Geg-HG 3016 (General Cartography Practical)	GEG-SE 3014 (Remote Sensing Practical)	
	Geg-HC 3026	Geography of India		Geg-HG 3026 (Climate Change: Vulnerability and adaptation)	GEG-SE 3024 (Geographical Information System Practical)	
	Geg-HC 3036	Statistical Methods in Geography (Practical)		Geg-HG 3036 (Rural Development)		

Core=Hons. Discipline specific core (14 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**

DSE= Discipline specific elective course (4 papers of 6 credit each) - **Course Code: HE**

GE= Generic elective course (4 papers of 6 credit each) - **Course Code: HG**

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.

Paper Code: Geg-HC3016
Paper Name: Climatology (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of climatology like structure and composition.
2. Detailed analysis of global atmospheric pressure and wind system.
3. Understanding of the concept of oceanic topography.

Learning Outcomes:

1. Detailed exposure of climatology and oceanic relief features.
2. In-depth knowledge of upper atmospheric conditions and cyclonic features.
3. Understanding the characteristics of climatic regions.

Course content:

1. Atmospheric Composition and Structure Variation with Altitude, Latitude and Season. 10
2. Insolation and Temperature- Factors and Distribution, Heat Budget, Temperature Inversion. 10
3. Atmospheric Pressure and Winds- Planetary Winds, Forces affecting Winds, General Circulation, Jet Streams. 25
4. Atmospheric Moisture - Evaporation. Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions (Koeppen). 30
5. Cyclones- Tropical Cyclones, Extra Tropical Cyclones, Monsoon- Origin and Mechanism. 25

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.

Paper Code: Geg-HC3026
Paper Name: Geography of India (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of the geographical features of India and their spatial distribution.
2. Detailed analysis of economic resources of India
3. Understanding of regional divisions of India.

Learning Outcomes:

1. Detailed exposure to the human and physical features of India.
2. In-depth knowledge of different resource base of India.
3. Understanding socio-cultural base of India.

Course content:

1. Physical: Physiographic Divisions; Soil and Vegetation; Climate (Characteristics and Classification). 10
2. Population: Distribution, Growth and Structure (with special reference to Manipur). 10
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. 30
4. Social: Distribution of Population by Race, Caste, Religion, Language, Tribes and their Correlates. 25
5. Regionalisation of India: Physiographic (R. L. Singh); Socio - cultural (Sopher); Economic (Sengupta); Regions of Manipur based on the existing Hill-Valley Divide. 25

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 Perspect* 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.
8. Singh , R. L., 1971. *India: A Regional Geography*. Delhi: National Geographical Society of India.
9. Singh, J., 2003. *India - A Comprehensive & Systematic Geography*. Gorakhpur: Gyanodaya Prakashan.
10. Spate , O. H. K. & Learmonth , A. T. A., 1967. *India and Pakistan: A General and Regional Geography*. s.l.:Methuen.
11. Tirtha, R., 2002. *Geography of India*. Jaipur & New Delhi: Rawat Publs.

Semester III
Paper Code: Geg-HC3036
Paper Name: Statistical Methods in Geography (Practical)
Total Credits: 6

Course Objectives

1. The concept of quantitative information in general and Geographical data in particular. The importance of data analytics. The ways data is collected or data is taken from different sources. The sampling methods' application for data collection purposes.
2. The ways to handle the collected data through classification, tabulation and stigmatization. The data presentation using graphical and diagrammatic ways.
3. To calculate different averages on data and to identify the variations in data.
4. To compute relations and impacts among the data series.
5. The concept of probability particularly normal curve.

Learning Outcomes:

The following will be the outcomes of this course, student shall be able:

1. To differentiate between qualitative and quantitative information.
2. To know the nature of various data , different sources and methods of data collection.
3. To apply sampling methods for data collection.
4. To classify, summarize and produce various types of data tabulations.
5. To present data through graphical and diagrammatic formats.
6. To apply different forms of averages, their relevance on descriptive data and geographical descriptive data as well.
7. To analyze the variations in spatial and non-spatial data.
8. To study the associations and cause/effect or impact from the data series
9. To use the concept of probability mainly the normal distribution.

Course content:

1. Use of Data in Geography: Geographical Data Matrix; Significance of Statistical Methods in Geography; Sources of Data; Scales of Measurement (Nominal, Ordinal, Interval, Ratio). 20
2. Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles); Cross Tabulation; Central Tendency (Mean, Median and Mode); Centographic Techniques; Dispersion (Standard Deviation, Variance and Coefficient of Variation). 30
3. Sampling: Purposive, Random, Systematic and Stratified. 15
4. Theoretical Distribution: Probability and Normal Distribution. 15
5. Association and Correlation: Rank Correlation, Product Moment Correlation, and Simple Regression, Residuals from Regression. 20

Class Record: Each student will submit a record containing five exercises:

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.

4. From the data matrix a sample set (20 percent) would be drawn using, random - systematic and stratified methods of sampling and locate the samples on a map with a short note on methods used.
5. Based on of the sample set and using two relevant attributes, a scatter and regression line would be plotted and residual from regression would be mapped with a short interpretation.

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

Semester III
Paper Code: Geg-SE3014
Paper Name: Remote Sensing (Practical)
Total Credits: 4

Course Objectives:

1. The course aim is to give basic technical knowledge and practical experience in digital remote sensing.
2. Knowledge and practical experience in handling satellite images focusing on hands-on experience of image pre-processing, enhancement and classification;
3. Better understand the techniques for the study of land use land cover and urban study.

Learning Outcomes:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain principles of remote sensing, different satellite systems and sensors;
2. Perform image pre-processing, enhancement and classification and interpretation of satellite images;
3. Apply Image preprocessing for land use land cover and urban studies;

Course content:

1. Remote Sensing: Definition and Development; Platforms and Types; Photogrammetry. 15
2. Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS); Sensors. 25
3. Image Processing (Digital and Manual): Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised). 30
4. Satellite Image Interpretation. 15
5. Application of Remote Sensing: Land Use Land Cover. 25

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

Semester III
Paper Code: Geg-SE3024
Paper Name: Geographic Information System (Practical)
Total Credits: 4

Course Objectives:

1. The course aim is to give basic understanding of concept of GIS, its definitions and components;
2. To gain working experience geographical data collection using GPS;
3. To do analysis and application of geographical data in land use, urban sprawl, and forest study.

Learning Outcomes:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Develop basic understanding and hands-on on GIS software and GPS ;
2. Understand GIS Data Structures and GIS Data Analysis ;
3. Apply GIS for natural resource management, urban and land use land cover study;

Course content:

1. Geographical Information System (GIS): Definition and Components. 10
2. Global Positioning System (GPS) - Principles and Uses; DGPS. 20
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure. 25
4. GIS Data Analysis: Input; Geo-Referencing; Editing, Output and Query; Overlays. 25
5. Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring. 20

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

Reading List

1. Bhatta , B., 2010. *Analysis of Urban Growth and Sprawl from Remote Sensing*. s.l.:Springer.
2. Burrough, P. A. & McDonnell, . R. A., 2000. *Principles of Geographical Information System- Spatial Information System and Geo-statistics*. s.l.:Oxford University Press.
3. Chauniyal, . D., 2010. *Sudur Samvedana Avam Bhaugolik Suchna Pranali*. Allahabad: Sharda Pustak Bhawan.
4. Heywoods , I., Cornelius, . S. & Carver , S., 2006. *An Introduction to Geographical Information system*. s.l.:Prentice Hall.
5. Jha , M. M. & Singh , R. B., 2008. *Land Use: Reflection on Spatial Informatics Agriculture and Development*. New Delhi: Concept.
6. Nag , P., 2008. *Introduction to GIS*. New Delhi: Concept India.
7. Sarkar , A., 2015. *Practical Geography: A Systematic Approach*. New Delhi: Orient Black Swan Private Ltd..

Semester III
Paper Code: Geg-HG3016
Paper Name: General Cartography (Practical)
Total Credits: 6

Course Objectives:

1. Create professional and aesthetically pleasing maps through thoughtful application of cartographic conventions;
2. Develop an understanding of the concepts regarding scale, map projections to suit map purposes;
3. Better understand the techniques of interpretation of topographical and weather maps

Learning Outcomes:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain how maps work, conceptually and technically and will be able to understand science and art of cartography.
2. Recognize the benefits and limitations of some common map projections and their use.
3. Understand and perform interpretation of topographical maps and weather maps.

Course content:

1. Cartography- Nature and Scope of Cartography; Scales – Concept and Application; Graphical Construction of Plain, Comparative and Diagonal Scales; Enlargement or Reduction of Scales. 15
2. Map Projections – Definition and Classification of Map Projections; Graphical Construction, Properties and Uses of Polar Zenithal Stereographic, Polar Zenithal Equal Area; Simple Conical Projection with One Standard Parallel and Simple Conical Projection with Two Standard Parallels; Simple Cylindrical Projection and Cylindrical Equal Area Projection. 30
3. Representation of Socio-Economic Data – Line, Dot, Pie-Charts; Bar- Simple and Multiple; Age-Sex Pyramids; Block Pile Diagram. 20
4. Indian Toposheet Analysis Conventional Symbols, Interpretation of Plain, Mountain and Plateau Regions; Study of Weather Conditions Depicted by Indian Weather Maps. 15
5. Field Survey and Preparation of Field Report. 20

Reading List

1. Mahmood , A., 1977. *Statistical Methods in Geographical Studies*. s.l.:Concept.
2. Mishra, R. P. & Ramesh, A., 1989. *Fundamentals of Cartography*. New Delhi: Concept.
3. Monkhouse , F. J. & Wilkinson , H. R., 1973. *Maps and Diagrams*. London: Methuen.
4. Raisz, E., n.d. *General Cartography*. London : McGraw Hills Co..
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*. Delhi: Kalyani Publishers.
7. Singh, R. & Singh, L. R., n.d. *Mapworks In Practical Geography*. Allahabad: Central Book Depot.

Semester III
Paper Code: Geg-HG3026
Paper Name: Climate Change, Vulnerability and Adaptation (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of climate change and adaptability.
2. Detailed analysis of vulnerability and its impacts.
3. Understanding of the concept of mitigation and planning.

Learning Outcomes:

1. Detailed exposure of climate change and related issues.
2. In-depth knowledge of vulnerability of flora and fauna.
3. Understanding the impact of climate change and its planning.

Course content:

1. Science of Climate Change: Understanding Climate Change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC. 20
2. Climate Change and Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability. 20
3. Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health. 20
4. Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia. 20
5. National Action Plan on Climate Change; Local Institutions (Urban Local Bodies Panchayats). 20

Reading List

1. IPCC, 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B.: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, UK and New York, USA: Cambridge University Press.
2. IPCC, 2007. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, UK and New York, USA: Cambridge University Press.
3. IPCC, 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, UK and New York, USA: Cambridge University Press.
4. OECD, 2008. *Climate Change Mitigation: What Do we Do? Organisation and Economic Co-operation and Development.* s.l.:s.n.
5. Sen Roy, . S. & Singh, R. B., 2002. *Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions.* New Delhi: Oxford & IBH Pub..
6. Singh, M., Singh, R. B. & Hassan, M. I., 2014. *Climate Change and Biodiversity: Proceedings IGU Rohtak Conference.* Volume 1. Advances in Geographical and Environmental Studies ed. s.l.:Springer.
7. UNEP, 2007. *Global Environment Outlook: GEO4: Environment for Development.* s.l.:United Nations Environment Programme.

Semester III
Paper Code: Geg-HG3036
Paper Name: Rural Development (Theory)
Total Credits: (5+1) = 6

Course objectives:

1. The main objectives of this course is to give students an insight into the concepts , approaches and planning process related to rural development in India.
2. The students will learn the rural economic base, rural development process and provision of services in rural areas.

Learning Outcomes

Upon successful completion of the course, the students:

1. Will be acquainted with the need and approaches to rural development,
2. Will gain knowledge on rural economic base especially about the significance of development of non-farm sector in rural areas,
3. Will have in-depth knowledge of pre and post-independence period of rural development,
4. Will be sensitized to understand the relevance of access to services like health, education in rural areas.

Course content:

1. Defining Development: Inter-Dependence of Urban and Rural Sectors of the Economy; Need for Rural Development, Gandhian Approach of Rural Development.
20
2. Rural Economic Base: Panchayatiraj System, Agriculture and Allied Sectors, Seasonality and need for Expanding Non-Farm Activities, Co-operatives, PURA. 20
3. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY. 20
4. Target Group Approach to Rural Development: SJSY, MNREGA, Jan Dhan Yojana and Rural Connectivity. 20
5. Provision of Services - Physical and Socio-Economic Access to Elementary Education and Primary Health Care and Micro credit in India (with special reference to Manipur).
20

Reading List

1. Gilg , A. W., 1985. *An Introduction to Rural Geography*. London: Edwin Arnold.
2. Krishnamurthy, J., 2000. *Rural Development - Problems and Prospects*. Jaipur: Rawat Publs..
3. Lee , D. A. & Chaudhri , D. P., 1983. *Rural Development and State*. London: Methuen.
4. Misra , R. P. & Sundaram, K. V., 1979. *Rural Area Development: Perspectives and Approaches*. New Delhi: Sterling.
5. Misra, R. P., 1985. *Rural Development: Capitalist and Socialist Paths, Vol. 1*. New Delhi: Concept.
6. Palione , M., 1984. *Rural Geography*,. London: Harper and Row.
7. Ramachandran , H. & Guimaraes , J. P. C., 1991. *Integrated Rural Development in Asia-Learning from Recent Experience*. New Delhi: Concept Publishing.

8. Robb , P., 1983. *Rural South Asia: Linkages, Change and Development*. s.l.:Curzon Press.
9. UNAPDI, 1986 . *Local Level Planning and Rural Development: Alternative Strategies*. (United Nations Asian & Pacific Development Institute, Bangkok) ed. New Delhi: Concept Publs. Co..
10. Wanmali , S., 1992. *Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India*. Washington. D.C.: International Food Policy Research Institute.
11. Yugandhar, B. N. & Mukherjee, N., 1991. *Studies in Village India: Issues in Rural Development*. New Delhi.: Concept Publs. Co..

CBCS Hons. Degree Programme Course Structure for 4th Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
Fourth	14 papers x 6 credit each		4 papers x 6 credit each	4 papers x 6 credit each	2 papers x 4credit each	2 papers x 4 credit each
	Code	Title				
	Geg-HC 4016	Economic Geography		Geg-HG 4016 (Environmental Geography)	GEG-SE 4014 (Advance Spatial Statistical Techniques)	
	Geg-HC 4026	Environmental Geography		Geg-HG 4026 (Industrial Geography)	GEG-SE 4024 (Research Methods Practical)	
	Geg-HC 4036	Remote sensing and GIS		Geg-HG 4036 (Sustainable Development)		

Core=Hons. Discipline specific core (14 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**

DSE= Discipline specific elective course (4 papers of 6 credit each) - **Course Code: HE**

GE= Generic elective course (4 papers of 6 credit each) - **Course Code: HG**

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.

Semester IV
Paper Code: Geg-HC4016
Paper Name: Economic Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To understand the concept and spatial distribution of economic activities in the world.
2. To analyse the factors affecting the economics activity focusing on Von Thunen and Weber theory.
3. To describe in the details the regionalization of different economic activities.

Learning Outcomes:

After learning, students should be able to:

1. Distinguish to 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. 10
2. Factors Affecting location of Economic Activity with Special Reference to Agriculture (Von Thunen Theory); Industry (Weber's theory). 25
3. Primary Activities: Subsistence and Commercial Agriculture, Forestry, Fishing and Mining in India (with special reference to Manipur). 25
4. Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions, Special Economic Zones and Technology Parks. 20
5. Tertiary Activities: Transport, Trade and Services. 20

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
Paper Code: Geg-HC4026
Paper Name: Environmental Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of environment and natural resource management.
2. Detailed analysis of concept, structure and functions.
3. Understanding of the concept of appraisal and conservation of Environment and Natural Resources.

Learning Outcomes:

1. Detailed exposure of human – environment relationship.
2. In-depth knowledge of environmental issues in tropical, temperate and polar ecosystems.
3. Understanding the environmental programmes and policies at local as well as global level.

Course content:

1. Environmental Geography: Concept and Scope. 10
2. Human-Environment Relationships: Historical Progression; Adaptation in different Biomes. 25
3. Ecosystem: Concept, Structure and Functions. 20
4. Environmental Problems in Tropical, Temperate and Polar Ecosystems. 20
5. Environmental Programmes and Policies: Global, National and Local levels. 25

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 IV
Paper Code: Geg-HC4036
Paper Name: Remote Sensing and GIS (Practical)
Total Credits: 6

Course Objectives:

1. The course aim is to give basic technical knowledge and practical experience in digital remote sensing.
2. Knowledge and practical experience in handling satellite images focusing on hands-on experience of image pre-processing, enhancement and classification;
3. Better understand the techniques for the study of land use land cover and urban study.

Learning Outcomes:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain principles of remote sensing, different satellite systems and sensors;
2. Perform image pre-processing, enhancement and classification and interpretation of satellite images;
3. Apply Image preprocessing for land use land cover and urban studies;

Course content:

1. Remote Sensing and GIS: Definition and Components. Development, Platforms and Types. 20
2. Aerial Photography and Satellite Remote Sensing: Principles, Types and Geometry of Aerial Photograph; Principles of Remote Sensing, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors. 25
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure. 10
4. Image Processing (Digital and Manual) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised), Geo-Referencing; Editing and Output; Overlays. 25
5. Interpretation and Application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring. 20

Practical Record: A project file consisting of two exercises will be done from aerial photos and satellite images (scale, orientation and interpretation) and 3 exercises on using any GIS Software on above mentioned themes.

Reading List

1. Campbell , J. B., 2007. *Introduction to Remote Sensing*. s.l.:Guildford Press.
2. Chauniyal, D., 2010. *Sudur Samvedan evam Bhogolik Suchana Pranali Sharda*. Allahabad: Pustak Bhawan.
3. Jensen , J. R., 2004. *Introductory Digital Image Processing: A Remote Sensing Perspective*. s.l.:Prentice Hall.
4. Joseph , G., 2005. *Fundamentals of Remote Sensing*. s.l.:United Press India.
5. Lillesand , T. M., Kiefer, . R. W. & Chipman , J. W., 2004. *Remote Sensing and Image Interpretation*. Wiley Student ed. s.l.:Wiley.

6. Nag , P. & Kudra , M., 1998. *Digital R*
- 7.
8. *emote Sensing*. New Delhi: Concept.
9. Rees , W. G., 2001. *Physical Principles of Remote Sensing*. s.l.:Cambridge University Press.
10. Sarkar , A., 2015. *Practical geography: A Systematic Approach*. s.l.:Orient Black Swan Private Ltd..
11. Singh , R. B. & Murai , S., 1998. *Space-informatics for Sustainable Development*. s.l.:Oxford and IBH Pub..
12. Wolf , P. R. & Dewitt , B. A., 2000. *Elements of Photogrammetry with Applications in GIS*. New Delhi: McGraw Hill.

Semester IV
Paper Code: Geg-SE4014
Paper Name: Advanced Spatial Statistical Techniques (Theory)
Total Credits: (3+1) = 4

Course Objectives:

1. Understanding the application of statistical data in the spatial analysis.
2. Detailed analysis of statistical techniques in geographical study
3. Understanding of statistical applications to analyse both spatial and non-spatial data

Learning Outcomes:

1. In depth understanding about the use of quantitative data in the geographical studies
2. Detailed knowledge of statistical techniques to analyse the quantitative data
3. Understanding of statistical software package to enhance the students with quantitative analysis

Course content:

1. Statistics and Statistical Data: Spatial and Non-spatial; Indices of Inequality and Disparity. 15
2. Probability Theory, Probability Density Functions with Respect to Normal, Binomial and Poisson Distributions and Their Geographical Applications. 20
3. Sampling: Sampling Plans for Spatial and Non-Spatial Data, Sampling Distributions; Sampling Estimates for Large and Small Samples Tests Involving Means and Proportions. 25
4. Correlation and Regression Analysis: Rank Order Correlation and Product Moment Correlation; Linear Regression; Residuals from Regression; and Simple Curvilinear Regression; Introduction to multi-variate analysis. 25
5. Time Series Analysis: Time Series Processes; Smoothing Time Series; Time Series Components. 15

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

Reading List

1. Bart , J. E. & Gerld, M. B., 1996. *Elementary Statistics for Geographers*. London: The Guieford Press.
2. Cressie , N. A. C., 1991. *Statistics for Spatial Analysis*. New York: Wiley.
3. Eldon, D., 1983. *Statistics in Geography: A Practical Approach*. London: Blackwell.
4. Gregon , S., 1978. *Statistical Methods and The Geographers*. 4th ed. London: Longman.
5. Haining, R. P., 1990. *Spatial Data Analysis in the Social and Environmental Science*. Cambridge: Cambridge University Press.
6. K., S., 1998. *Statistics for Geoscientists: Techniques and Applications*. New
7. Delhi: Concept Publishing Company.
8. Mathews, J. A., 1987. *Quantitative and Statistical Approaches to Geography: A Practical Manual*. Pergamon : Oxford.
9. McGrew, J. & Charles, B. M., 1993. *An Introduction to Statistical Problem solving in Geography*. New Jersey: W.C. Brocan Publishers.
10. Wei, W. S., 1990. *Time Series Analysis: Variate and Multivariate Methods*. s.l.:Addison Wesley

Semester IV
Paper Code: Geg-SE4024
Paper Name: Research Methods
Total Credits: (3+1) = 4

Course Objectives:

1. Various dimensions of field work and its role in geographical studies..
2. Detailed analysis of different field techniques.
3. Understanding of the report writing and field tools.

Learning Outcomes:

1. Detailed exposure of new geographical landscape as study area.
2. In-depth knowledge of different field techniques.
3. Understanding the field ethics and different tools of field study.

Course content:

1. Geographic Enquiry: Definition and Ethics; Framing Research Questions, Objectives and Hypothesis; Literature Review; Preparing Sample Questionnaire. 20
2. Data Collection: Type and Sources of Data; Methods of Collection; Input and Editing. 15
3. Data Analysis: Qualitative Data Analysis; Quantitative Data Analysis; Data Representation Techniques. 25
4. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract. 15
5. Preparation of Research Report. 25

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. Mishra, R. P., 2002. *Research Methodology*. New Delhi: Concept Publications.
5. Mukherjee , 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*

Semester IV
Paper Code: Geg-HG 4016
Paper Name: Environmental Geography
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of environment and natural resource management.
2. Detailed analysis of concept, structure and functions.
3. Understanding of the concept of appraisal and conservation of Environment and Natural Resources.

Learning Outcomes:

1. Detailed exposure of human – environment relationship.
2. In-depth knowledge of environmental issues in tropical, temperate and polar ecosystems.
3. Understanding the environmental programmes and policies at local as well as global level.

Course content:

1. Environmental Geography: Definitions, Scope and Concept of Environmental Geography. 15
2. Man-Environment Relationships: Historical Progression Adaptation in Different Biomes. 20
3. Ecosystem: Meaning and Concept of Ecosystem; Components of Ecosystem, Ecosystem Functioning and Major Ecosystems. 20
4. Environmental Problems: Global Warming and Climate Change, Natural Hazards (Volcanism, Earthquakes, Floods, Drought, Tsunami, Landslide); Causes of Biodiversity Loss and Conservation of Biodiversity. 25
5. Environmental Programmes and Policies: Global, National and Local Levels. 20

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. Odum , E. P., 2005. *Fundamentals of Ecology*. India: Ceneage Learning.
4. Singh, R. B., 1998. *Ecological Techniques and Approaches to Vulnerable Environment*. New Delhi: Oxford & IBH Pub..
5. Singh, S., 1991. *Environmental Geography*. Allahabad: Pustak Bhawan.

Semester IV
Paper Code: Geg-HG4026
Paper Name: Industrial Geography (Theory)
Total Credits: (5+1) = 6

Course Objective:

1. To understand the nature of industrial geography and appreciate the importance of Industrial Development
2. To analyze the industrial regions and associated impacts of industrialization and challenges.
3. To critical evaluate the industrial policy of India.

Learning Outcomes:

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.

Course content:

1. Nature and Scope of Industrial Geography. 15
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. 20
3. Mega Industrial Complexes: National Capital Region, Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region and Chota Nagpur Industrial Region. 25
4. Impact of Industrialisation in India: Environmental; Social and Economic. 20
5. Industrial Policy of India. 20

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 Pubs..
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 IV
Paper Code: Geg-HG4036
Paper Name: Sustainable Development (Theory)
Total Credits: (5+1) = 6

Course objectives:

1. To learn the concepts related with Sustainable development and its role in reducing poverty and inequality in the world.
2. To get updated knowledge of Millennium Development Goals & Sustainable Development Goals.
3. To critically evaluate the global policies and programmes for sustainable development.

Learning Outcomes:

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. Sustainable Development: Definition, Components. Limitations and Historical Background. 10
2. The Millennium Development Goals: National Strategies and International Experiences. 20
3. Sustainable Regional Development: Need and examples from different Ecosystems. 15
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. 30
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. 25

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..

CBCS Hons. Degree Programme Course Structure for 5th Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
FIVE	14 papers x 6 credit each		4 papers x 6 credit each	4 papers x 6 credit each	2 papers x 4 credit each	2 papers x 4 credit each
	Code	Title				
	Geg-HC 5016	Regional planning And development	Geg-HE 5016 (Population Geography)			
	Geg-HC 5026	Field work and Research methodol Logy	Geg-HE5026 (Resource Geography)			
			Geg-HE5036 (Urban Geography)			
		Geg-HE5046 (Agriculture Geography)				

Core=Hons. Discipline specific core (14 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**

DSE= Discipline specific elective course (4 papers of 6 credit each) - **Course Code: HE**

GE= Generic elective course (4 papers of 6 credit each) - **Course Code: HG**

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.

Semester V
Paper Code: Geg-HC5016
Paper Name: Regional Planning and Development (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To understand the concept of Region and Regional Planning.
2. To familiarize the students with Theories and Models for Regional Planning.
3. To develop understanding about concept of Development, Sustainable Development and different programmes and policies.

Learning Outcome:

After studying, students will be able to:

1. Conceptualize the Regional Planning and its theories.
 2. Get the overview of Sustainable Regional Development.
 3. Have sound knowledge to Sustainable Development Policies and Programmes.
-
1. Definition of Region, Evolution and Types of Regional Planning; Formal, Functional, and Planning Regions and Regional Planning; Need for Regional Planning; Types of regional Planning. 15
 2. Choice of a Region for Planning: Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning (Agro Ecological Zones). 25
 3. Theories and Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Myrdal, Hirschman, Rostow and Friedmann; Village Cluster. 25
 4. Changing Concept of Development, Concept of Underdevelopment; Efficiency-Equity Debate. 20
 5. Measuring Development: Indicators (Economic, Social and Environmental); Human development. 15

Reading List

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

Semester V
Paper Code: Geg-HC5026
Paper Name: Field Work and Research Methodology (Practical)
Total Credits: 6

Course Objectives:

1. Various dimensions of field work and its role in geographical studies..
2. Detailed analysis of different field techniques.
3. Understanding of the report writing and field tools.

Learning Outcome:

4. Detailed exposure of new geographical landscape as study area.
5. In-depth knowledge of different field techniques.
6. Understanding the field ethics and different tools of field study.

Course Contents:

1. Field Work in Geographical Studies: Role, Value, Data and Ethics of Field-Work. 10
2. Defining the Field and Identifying the Case Study Rural/Urban /Physical / Human/
Environmental. 10
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). 15
4. Use of Field Tools: Collection of Material for Physical and Socio-Economic Surveys. 15
5. Designing the Field Report: Aims and Objectives, Methodology, Analysis,
Interpretation and Writing the Report Based on Field Visit. 50

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
Paper Code: Geg-HE5016
Paper Name: Population Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. It introduces the basic concepts of population Geography to the students.
2. An understanding of the importance and need of Demographic data.
3. Spatial understanding of population dynamics.

Learning Outcomes:

1. This paper would bring an understanding of Population Geography along with relevance of Demographic data.
2. The students would get an understanding of distribution and trends of population growth in the developed and less developed countries, along with population theories.

Course content:

1. Defining the Field: Nature and Scope; Sources of Data with Special Reference to India (Census, Vital Statistics and NSS). 20
2. Population Size, Distribution and Growth: Determinants and Patterns; Theories of Growth- Malthusian Theory and Demographic Transition Theory. 25
3. Population Dynamics: Fertility, Mortality and Migration - Measures, Determinants and Implications. 20
4. Population Composition and Characteristics: Age-Sex Composition; Rural and Urban Composition and Literacy in India (with special reference to Manipur). 20
5. Contemporary Issues: Ageing of Population; Declining Sex Ratio; HIV/AIDS. 15

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 .

Semester V
Paper Code: Geg-HE5026
Paper Name: Resource Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To introduce the concept of natural resource, its type and classification techniques
2. To identify various problems in management and utilization of water resource, forests and energy resources
3. To understand the concept of sustainable resource development.

Learning Outcomes:

At the end of the course students will be able to

1. Define natural resource and classify natural resource using various techniques.
2. Give appraisal on the conservation of natural resources and sustainable resource development.

Course Content:

1. Natural Resource: Concept, Classification and Techniques. 20
2. Distribution, Utilisation, Problems and Management of Land Resources and Water Resources. 20
3. Distribution, Utilisation, Problems and Management of Forests and Energy Resources. 20
4. Appraisal and Conservation of Natural Resources. 20
5. Sustainable Resource Development. 20

Reading List

1. Mitchell B. , 1997 . *Resource and Environmental Management*. England: Longman Harlow .
2. Cutter S. N., Renwich 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
Paper Code: Geg-HE5036
Paper Name: Urban Geography (Theory)
Total Credits: (5+1) = 6

Course objectives:

1. To introduce the students with concepts and approach to studying the urban geography.
2. To study with patterns and functional attributes of urban places.
3. To analyze the urban contemporary issues focusing on Indian mega cities.

Learning Outcome

After studying, students will be able to:

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

Course content:

1. Urban Geography: Introduction, Nature and Scope. 15
2. Patterns of Urbanisation in Developed and Developing Countries. 20
3. Functional Classification of Cities: Quantitative and Qualitative Methods. 25
4. Urban Issues: Problems of Housing, Slums, Civic Amenities (Water and Transport). 25
5. Case studies of Delhi, Mumbai, Kolkata, Chennai and Chandigarh with reference to Land use and Urban Issues. 15

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 V
Paper Code: Geg-HE5046
Paper Name: Agricultural Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To understand the concept of land use/land cover classification and determinants of agriculture.
2. To familiarize the students with agriculture regions of India and various types of agriculture system in India.
3. To analyze the food security along with various agricultural revolutions and government policies in India.

Learning Outcome:

After studying, students will be able to:

1. Conceptualize 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. 20
2. Determinants of Agriculture: Physical, Technological and Institutional. 15
3. Agricultural Regions of India: Agro-climatic, Agro-ecological & Crop Combination Regions. 25
4. Agricultural Systems of the World (Whittlesey's classification) and Agricultural Land use Model (Von Thuenen, modification and relevance). 20
5. Agricultural Revolutions in India: Green, White, Blue and Pink. 20

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.

CBCS Hons. Degree Programme Course Structure for 6th Semester

Semester	Course Names and Credits					
	Core		DSE	GE	SEC	AECC
SIX	14 papers x 6 credit each		4 papers x 6 credit each	4 papers x 6 credit each	2 papers x 4 credit each	2 papers x 4 credit each
	Code	Title				
	Geg-HC 6016	Evolution of Geographical thought	Geg-HE6016 (Geography of Health and well-being)			
	Geg-HC 6026	Disaster Management Based project work	Geg-HE6026 (Political Geography)			
			Geg-HE6036 (Hydrology and Oceanography)			
		Geg-HE6046 (Social Geography)				

Core=Hons. Discipline specific core (14 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**

DSE= Discipline specific elective course (4 papers of 6 credit each) - **Course Code: HE**

GE= Generic elective course (4 papers of 6 credit each) - **Course Code: HG**

NOTE: i. A student opting a specific discipline as Honours course may take GE Papers from any other discipline available in the college other than his/her Honours discipline.

ii. All courses/discipline must have either Practical of 2 credit or Tutorial of 1 credit each.

Semester VI
Paper Code: Geg-HC6016
Paper Name: Evolution of Geographical Thought (Theory)
Total Credits: (5+1)=6

Course Objectives:

1. Understanding historical evolution of geographic thought
2. Detailed analysis of different paradigms in geography
3. Evaluating the contemporary trends in geographical studies

Learning Outcomes:

1. In depth understanding about the evolution of geographical thought
2. Detailed knowledge about the paradigms and debates in the geographical studies.
3. Understanding of recent traditions in geography

Course content:

1. Paradigms in Geography. 15
2. Pre-Modern: Early Origins of Geographical Thinking with reference to the Classical and Medieval Philosophies. 20
3. Modern- Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America. 25
4. Debates -Environmental Determinism and Possibilism, Systematic and Regional, Ideographic and Nomothetic. 20
5. Trends - Quantitative Revolution and its Impact, Behaviouralism, Systems Approach, Radicalism, Feminism; Towards Post Modernism - Changing Concept of Space in Geography, Future of Geography. 20

Reading List

1. Johnston , R. J., n.d. *Dictionary of Human Geography*. s.l.:Routledge.
2. Arentsen, M., Stam, R. & Thuijs, 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. Hartshorne , 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 VI
Paper Code: Geg-HC6026
Paper Name: Disaster Management based Project Work (Practical)
Total Credits: 5+1=6

Course Objectives:

1. Understanding the basic concepts of disaster management
2. Detailed analysis about the different types of disasters in India
3. Evaluating the various dimensions of disaster management through field works

Learning Outcomes:

1. In depth understanding about the various disasters in the country
2. It will provide thorough understanding about the human responses to the disasters
3. It will give an in-depth knowledge about the disasterscapes through fieldworks

Course content:

The Project Report based on any two field based case studies among following disasters and one disaster preparedness plan of respective college or locality:

1. Flood
2. Drought
3. Cyclone and Hailstorms
4. Earthquake
5. Landslides
6. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents

Reading List

1. Government of India, 1997. *Vulnerability Atlas of India*. New Delhi: Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A., 2010. *Vulnerable India: A Geographical Study of Disasters*. New Delhi: Sage Publication.
3. Modh, S., 2010. *Managing Natural Disaster: Hydrological, Marine and Geological Disasters*. Delhi: MacMillan .
4. Singh , J., 2007. *Disaster Management Future Challenges and Opportunities*. New Delhi: I.K. International Pvt. Ltd..
5. Singh, R. B., 2005. Risk Assessment and Vulnerability Analysis. In: New Delhi: IGNOU.
6. Singh, R. B., 2006. *Natural Hazards and Disaster Management: Vulnerability and Mitigation*. New Delhi: Rawat Publications.
7. Sinha, A., 2001. *Disaster Management: Lessons Drawn and Strategies for Future*. New Delhi: New United Press.
8. Stoltman, J. P. et al, 2004. *International Perspectives on Natural Disasters*,. Dordrecht: Kluwer Academic Publications.

Semester VI
Paper Code: Geg-HE6016
Paper Name: Geography of Health and Wellbeing (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. Various dimensions of health geography and its linkages with environment.
2. Detailed analysis of environment and health quality and exposure to risk.
3. Understanding of the relationship between climate change and human health.

Learning Outcome:

1. Detailed exposure of health geography and environment.
2. In-depth knowledge of health risk and exposure.
3. Understanding the impact of climate change and human health.

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. 20
2. Pressure on Environmental Quality and Health: Human Activities and Environmental Pressure, Land Use and Agricultural Development; Industrialization; Transport and Energy. 20
3. Exposure and Health Risks: Air pollution: Household Wastes; Water; Housing; Workplace. 20
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). 20
5. Climate Change and Human Health: Changes in Climate System - Heat and Cold; Biological Disease Agents; Food Production and Nutrition. 20

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.

Semester VI
Paper Code: Geg- HE6026
Paper Name: Political Geography (Theory)
Total Credits: (5+1) = 6

Course Objectives:

1. To critically understand the concepts of state, nation and nation state,
2. To develop the linkages between electoral geography and political geography
3. To interpret the politics of displacement focusing on Dams and SEZ.

Course Learning Outcomes:

After studying, students will be able 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 content:

1. Introduction: Concepts, Nature and Scope. 15
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). 25
3. Electoral Geography - Geography of Voting, Geographic Influences on Voting Pattern, Geography of Representation, Gerrymandering. 20
4. Political Geography of Resource Conflicts- Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals. 20
5. Politics of Displacement: Issues of Relief, Compensation and Rehabilitation: with Reference to Dams and Special Economic Zones. 20

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.

Semester VI
Paper Code: Geg-HE6036
Paper Name: Hydrology and Oceanography (Theory)
Total Credits: (5+1) = 6

Course Objectives

1. To understand the basics of hydrological regime
2. to explain the integrated concept of water resource management
3. to describe the basic characteristics of soil resource

Learning Outcomes

After studying this course, students will be able to:

1. Understand the basic components of hydrological cycle and learn best practices of integrated watershed management,
2. Explain various components of water balance and management of river basins,
3. Identify different types of soil, distribution and management of soil resources.

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. 20
2. River Basin and Problems of Regional Hydrology: Characteristics of River Basins, Basin Surface Run-Off, Measurement of River Discharge; Floods and Droughts. 20
3. Ocean Floor Topography and Oceanic Movements: Waves, Currents and Tides. 20
4. Ocean Salinity and Temperature: Distribution and Determinants. 15
5. Coral Reefs and Marine Deposits and Ocean Resources: Types and Theories of Origin; Biotic, Mineral. 25

Reading List

1. Andrew , D. W. & Stanley , T., 2004. *Environmental Hydrology*. 2nd ed. s.l.:Lewis PublishersCRC Press.
2. Anikouchine , W. A. & Sternberg , R. W., 1973. *The World Oceans: An Introduction to Oceanography*. s.l.:Prentice-Hall.
3. Garrison , T., 1998. *Oceanography*. Belmont: Wordsworth Company.
4. Karanth , K., 1988. *Ground Water: Exploration, Assessment and Development*. New Delhi: Tata- McGrawHill.
5. Kershaw , S., 2000. *Oceanography: An Earth Science Perspective*. UK: Stanley Thornes.
6. Pinet , P. R., 2008. *Invitation to Oceanography*. 5th ed. USA, UK and Canada: Jones and Barlett Publishers.
7. Ramaswamy , C., 1985. *Review of floods in India during the past 75 years: A Perspective*. New Delhi: Indian National Science Academy.
8. Rao , K., 1982. *India's Water Wealth*. 2nd ed. Delhi: Orient Longman.
9. Sharma, R. C. & Vatal , M., 1980. *Oceanography for Geographers*. Allahabad: Chaitanya Publishing House.
10. Singh , M., Singh , R. & Hassan , M. I., 2014. *Landscape Ecology and Water management. Proceedings of IGU Rohtak Conference, Volume 2. Advances in Geographical and Environmental Studies*. s.l.:Springer.
11. Singh , V. P., 1995. *Environmental Hydrology*. The Netherlands: Kluwar Academic Publications.
12. Sverdrup , K. A. & Armbrust , E. V., 2008. *An Introduction to the World Ocean*. Boston: McGraw Hill.

Semester VI
Paper Code: Geg-HE6046
Paper Name: Social Geography (Theory)
Total Credits: (5+1) = 6

Objectives:

1. To introduce the concept of social geography, its origin, nature and scope
2. To understand peopling process and social categories and their distribution in India with special reference to Manipur.
3. To acquaint students with the concept of geographies of welfare- healthcare, housing and education.
4. To familiarize with the concept of social geographies of inclusion and exclusion, communal conflict

Learning outcome:

1. Define social geography, its concept, origin, nature and scope
2. Identify the peopling process in India with special reference to Manipur.
3. Comprehend the concept of geographies of welfare and well being, social geographies of inclusion and exclusion, communal conflict and crime

Course content:

1. Social Geography: Concept, Origin, Nature and Scope. 15
2. Peopling Process of India: Technology and Occupational Change; Migration. 20
3. Social Categories: Caste, Class, Religion, Race and Gender and their Spatial Distribution in India (with special reference to Manipur). 25
4. Geographies of Welfare and Well-being: Concept and Components - Healthcare, Housing and Education. 20
5. Social Geographies of Inclusion and Exclusion, Slums, Gated Communities, Communal Conflicts and Crime. 20

Reading List

1. Ahmed, . A., 1999. *Social Geography*. s.l.:Rawat Publications.
2. Casino , V. J. D. Jr., 2009. *Social Geography: A Critical Introduction*. s.l.:Wiley Blackwell.
3. Cater , J. T., 2000. *Social Geography: An Introduction to Contemporary Issues* Hodder. s.l.:Arnold.
4. Holt , L., 2011. *Geographies of Children, Youth and Families: An International Perspective*. s.l.:Taylor & Francis.
5. Panelli , R., 2004. *Social Geographies: From Difference to Action*. s.l.:Sage.
6. Rachel , P. et al., 2001. *Introducing Social Geographies*. s.l.:Oxford University Press.
7. Smith , D. M., 1994. *Geography and Social Justice*. Oxford: Blackwell.
8. Smith , S. J., Pain , R., Marston , S. A. & Jones , J. P., 2009. *The SAGE Handbook of Social Geographies*. s.l.:Sage Publications.
9. Smith, D. M., 1977. *Human geography: A Welfare Approach*. London: Edward Arnold.
10. Sopher , D., 1980. *An Exploration of India*. Ithasa: Cornell University Press.
11. Valentine , G., 2001. *Social Geographies: Space and Society*. s.l.:Prentice Hall.
- Singh, Th. Nabakumar, 2011. *Geography of Manipur*. Delhi: Rajesh Publication.