# Bachelor of Arts (Honours) Geography under CBCS

**Programme Code:**

## Programme Outcomes

**At the completion of the programme, students will be able to:**

**PO1**: To get acquainted with various concepts and techniques of geography and able to explain complexity between forms and patterns related to Geomorphology, climatology, hydrology, biogeography and human geography.

P**O2**: Equip with knowledge of quantitative methods and cartographic techniques and their ability to use those techniques in solving geographical problems.

**PO3**: Construct various types of projections and other field base techniques such as surveying, sampling and other hands on methods.

**PO4:** capable to visual representation geographical data by drawing various types of diagrams.

**PO5:** Student will also be able to use different softawares as a skill enahancement tools in map –making, statistical analysis and surveying. Such as, GIS, Remote Sensing an, GPS, MS Office Excel.

**PO6:** Get sensitized and informed about the causes and effects of different physical, economic, socio- cultural, demographic and environmental problems at local, national and international level. Such as - global warming, acid rain, ozone depletion, soil degradation, deforestation, sustainable development etc.

**PO7**: Improve their potential to become an educator, administrator, researcher, cartographer or entrepreneur by using wide spectrum of geographical knowledge.

## Programme Specific Outcomes

**At the completion of the programme, students will attain the ability to:**

**PSO1**: **Acquireing Knowledge of Physical Geography (Geomorphology, climatology, oceanography and environmental Geography):** Enable understanding about complexities of different geomorphological, geotectonical, climatological, hydrological and environmental process and changes. Aable to use their knowledge in explanation of problems related to these geographical complexities and their interrelationship with Mankind.

**PSO2.Acquireing Knowledge of Human Geography**: They will be able to acquire the knowledge of different aspects of Human Geography such as – resource geography, economic geography, Population geography, agriculture

geography, settlement geography, urban geography, political geography, social geography and regional planning. Able to correlate their specific knowledge with their day to day life.

**PSO3. Ability of Problem Analysis:** Student will be able to analyse the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.

**PSO4.Conduct Dissertation and Project:** They will be able to do minor research projects/ Dissertation specially related with disasters for social well being.

**PSO5. Application of modern instruments**: Students will be able to learn the application of various modern instruments and by these they will be able to collect primary data.

**PSO6. Application of GIS and modern Geographical Map Making Techniques:** They will learn how to prepare map based on GIS by using the modern geographical map making techniques.

**PSO7. Development of Observation Power:** As a student of Geography Honours Course they will be capable to develop their observational power through field experience and in future they will be able to identify the socio-environmental problems of a locality/region.

**PSO8. Development of Communication Skill and Interaction Power:** After the completion of the project they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

**PSO9.Enhancement of the ability of Management:** Demonstrate knowledge and understanding of the management principles and apply these to theirs own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PSO10. Understand Environmental Ethics and Sustainability:** Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

**PSO11.Life-long learning:** Identify the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of societal and environmental change.

## Course Structure

### Semester I

| Sl. No. | Name ofCourse | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Geomorphology (Th) | CC-1 | 6-1-0 | 6 | 100 |
| 2. | CartographicTechniques (Th) | CC-2(Th) | 4-1-0 | 4 | 100 |
| 3. | CartographicTechniques (P) | CC-2 (P) | 0-0-6 | 2 | 100 |
| 4. | English Communication /MIL | AECC-1 | 2-1-0 | 2 | 100 |
| 5. | GenericElective- 1 | GE-1 | 6-1-0 | 6 | 100 |
| | | | | | **TotalCredit-20** |

### Semester–II

| Sl. No. | Name ofCourse | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Human Geography (Th) | CC-3 (Th) | 6-1-0 | 6 | 100 |
| 2. | Cartograms, Thematic Mapping, and Surveying (Th) | CC-4 (Th) | 4-1-0 | 4 | 100 |
| 3. | Cartograms, Thematic Mapping, and Surveying (P) | CC-4 (P) | 0-0-6 | 2 | 100 |
| 4. | Environmental Science | AECC-2 | 2-1-0 | 2 | 100 |
| 5. | GenericElective- 2(Th) | GE-2 | 6-1-0 | 6 | 100 |
| | | | | | **Total Credit-20** |

### Semester–III

| Sl. No. | Name of Course | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Climatology & Oceanography (Th) | CC-5 | 6-1-0 | 6 | 100 |
| 2. | Geography of India & Bihar (Th) | CC-6 | 6-1-0 | 6 | 100 |
| 3. | Statistical Methods in Geography (Th) | CC-7 (Th) | 4-1-0 | 4 | 100 |
| 4. | Statistical Methods in Geography(P) | CC-7 (P) | 0-0-4 | 2 | 100 |
| 5. | Skill Enhancement Course-1 | SEC-1 | 2-1-0 | 2 | 100 |
| 6. | GenericElective- 3 | GE-2 | 6-1-0 | 6 | 100 |
| | | | | | **Total Credit-26** |

**Semester–IV**

| Sl.No. | Name ofCourse | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Economics Geography (Th) | CC-8 | 6-1-0 | 6 | 100 |
| 2. | Environmental Geography (Th) | CC-9 | 6-1-0 | 6 | 100 |
| 3. | Research Methodology & Field Work (Th) | CC-10 (Th) | 4-1-0 | 4 | 100 |
| 4. | Research Methodology & Field Work (P) | CC-10 (P) | 0-0-4 | 2 | 100 |
| 5. | SkillEnhancementCourse-2 | SEC-2 | 2-1-0 | 2 | 100 |
| 6. | GenericElective- 4 | GE-4 | 6-1-0 | 6 | 100 |
| **TotalCredit-26** | | | | | |

**Semester –V**

| Sl.No. | Name of Course | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Regional Planning and Development(Th) | CC-11 | 6-1-0 | 6 | 100 |
| 2. | Remote Sensing and GIS (Th) | CC-12 (Th) | 4-1-0 | 4 | 100 |
| 3. | RemoteSensingand GIS (P) | CC-12 (P) | 0-0-4 | 2 | 100 |
| 4. | Discipline Specific Elective-1 | DSE-2 | 6-1-0 | 6 | 100 |
| 5. | Discipline Specific Elective-2 | DSE-2 | 6-1-0 | 6 | 100 |
| **Total Credit-24** | | | | | |

**Semester–VI**

| Sl.No. | Name ofCourse | Type of Course | L-T-P | Credit | Marks |
|---|---|---|---|---|---|
| 1. | Evolution of Geographical Thought (Th) | CC-13 | 6-1-0 | 6 | 100 |
| 2. | Disaster Management (Th) | CC-14 (Th) | 4-1-0 | 4 | 100 |
| 3. | Disaster Management (P) | CC-14 (P) | 0-0-4 | 2 | 100 |
| 4. | Discipline Specific Elective-3 | DSE-3 | 6-1-0 | 6 | 100 |
| 5. | Discipline Specific Elective-4 (Project/Dissertation) | DSE-4 | 0-0-6 | 6 | 100 |
| **Total Credit-24** | | | | | |

**Discipline Specific Elective Course (DSE):**

| Course name | L-T-P |
|---|---|
| 1. | |

**Generic Elective (GE):**

| For Geography Students | | For Other Students | |
|---|---|---|---|
| Course name | L-T-P | Course name | L-T-P |
| | | 1. | |

**Skill Enhancement courses (SEC):**

1.

# SEMESTER – I

## CC 1 : Geomorphology

### Course Outcomes

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

**CO1:** Develop an idea about geomorphology and different fundamental concepts and theory regarding origin and evolution of Earth, Isostacy and different types of landforms.

**CO2:** Understand different process of natural and anthropogenic operating factors affecting the development of landforms.

**CO3:** Assess the role of structure, process and stage in shaping the landforms

**CO4** Explain different types of geomorphic processes like weathering and mass wasting and cycle of erosion

**CO5** Understand the processes of erosion, deposition and resulting landforms.

| **CC 1 : Geomorphology (6 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Origin of the Earth- Nebular, Tidal and Big Bang Theory; Internal Structure of the Earth. | 08 |
| 2 | Isostasy-Concept of Airy and Pratt, Wegener's Continental Drift Theory, Plate Tectonics. | 10 |
| 3 | Mountain Building Theories of Kober and Holmes; Earth Movements, Earthquakes and Volcanoes. | 10 |
| 4 | Geomorphic Processes: Weathering and Erosion; Normal Cycle of Erosion- Davis andPenck. | 10 |
| 5 | Evolution of Landforms: Fluvial, Arid, Karst, and Glacial Topography. | 12 |
| | **TOTAL** | 60 |

**Reading List :**


1. Bloom A. L., (2003) *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi.
2. Bridges E. M., (1990) *World Geomorphology*, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011) Geosystems: *An Introduction to Physical Geography,* 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., (2001) *Introduction to Geomorphology*, Orient Longman, Hyderabad.
5. Knighton A. D., (1984) *Fluvial Forms and Processes*, Edward Arnold Publishers, London.
6. Dayal, P., *A Text Book of Geomorphology, Rajesh Publication, New Delhi.*
7. Richards K. S., (1982) *Rivers: Form and Processes in Alluvial Channels*, Methuen, London.
8. Selby, M.J., (2005), *Earth's Changing Surface,* Indian Edition, OUP
9. Skinner, Brian J. and Stephen C. Porter (2000), *The Dynamic Earth: An Introduction to physical Geology,* 4th Edition, John Wiley and Sons, US.
10. Thornbury W. D., (1968) *Principles of Geomorphology,* Wiley, US.
11. Gautam, A (2010): *BhautikBhugol,* Rastogi Publications, Meerut.
12. Singh, S (2009):*BhautikBhugol ka Swaroop,* PrayagPustak,Allahabad

# CC2 : Cartographic Techniques

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Explain how maps work, conceptually and technically and will be able to understand science and art of cartography

**CO2:** Recognize the benefits and limitations of some common map projections and their use.

**CO3:** Understand and perform interpretation of topographical maps and weather maps.

| **CC2 : Cartographic Techniques (4 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Nature and Scope of Cartography; Scale: Meaning and its Types. | 16 |
| 2 | Map and its Types, Interpretation of Topographical Maps. | 12 |
| 3 | Map Projection: Concept, Classification and Properties. | 14 |
| 4 | Relief and Interpretation of Mountain and Plateau Areas. | 06 |
| | **TOTAL** | 48 |

**Reading List :**


1. Anson R. and Ormelling F. J., (1994) *International Cartographic Association: Basic Cartographic Vol.* Pregmen Press.
2. Gupta K.K. and Tyagi, V. C., (1992)*Working with Map*, Survey of India, DST, New Delhi.
3. Maltiyar. K. K &Maltiyar S. R., (2019) Concept of *Cartography, Remote Sensing and GIS*, Rajesh publication, New Delhi.
4. Mishra R.P. and Ramesh, A., (1989)*Fundamentals of Cartography*, Concept, NResource& Economic Geographyew Delhi.
5. Monkhouse F. J. and Wilkinson H. R., (1973)*Maps and Diagrams*, Methuen, London.
6. Rhind D. W. and Taylor D. R. F., (eds.), (1989) *Cartography: Past, Present and Future*, Elsevier, International Cartographic Association.
7. Robinson A. H., (2009) *Elements of Cartography*, John Wiley and Sons, New York.
8. Sharma J. P., (2010)*PrayogicBhugol*, Rastogi Publishers, Meerut.
9. Singh R. L. and Singh R. P. B., (1999) *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
10. Sinha. M.M. P., (2017) *Ucch Cartography, Rajesh Publication, New Delhi.*
11. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.
12. Singh R L &Singh Rana P B, (1991) PrayogtmakBhugolkeMoolTatva, Kalyani Publishers, New Delhi.
13. Sharma, J P (2010) PrayogtmakBhugolkiRooprekha, Rastogi Publications, Meerut.
14. Singh, R L & Dutta, P K (2012) PrayogatmakBhugol, Central Book Depot, Allahabad.

| Topics to be covered |
|---|
| Construction of Scale- Simple, Comparative and Diagonal<br>Representation of Relief Features; Interpretation of Topographical Maps<br>Construction of Map Projection: Zenithal –Gnomonic, Conical- One Standard Parallel and Two Standard Parallel, CylindricalEquidistant |

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

**Reading List**


1. *Anson R. and Ormelling F. J., (1994) International Cartographic Association: Basic Cartographic Vol. Pregmen Press.*
2. *Gupta K.K. and Tyagi, V. C., (1992) Working with Map, Survey of India, DST, New Delhi.*
3. *Maltiyar. K. K &Maltiyar S. R., (2019) Concept of Cartography, Remote Sensing and GIS, Rajesh Publication, New Delhi.*
4. *Mishra R.P. and Ramesh, A., (1989) Fundamentals of Cartography, Concept, Resource & Economic Geography New Delhi.*
5. *Monkhouse F. J. and Wilkinson H. R., (1973) Maps and Diagrams, Methuen, London.*
6. *Rhind D. W. and Taylor D. R. F., (eds.), (1989) Cartography: Past, Present and Future, Elsevier, International Cartographic Association.*
7. *Robinson A. H., (2009) Elements of Cartography, John Wiley and Sons, New York.*
8. *Sharma J. P., (2010) PrayogicBhugol, Rastogi Publishers, Meerut.*
9. *Singh R. L. and Singh R. P. B., (1999) Elements of Practical Geography, Kalyani Publishers, New Delhi.*
10. *Sinha. M.M. P., (2017) Ucch Cartography, Rajesh Publication, New Delhi.*
11. *Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.*
12. *Singh R L &Singh Rana P B, (1991) PrayogtmakBhugolkeMoolTatva, Kalyani Publishers, New Delhi.*
13. *Sharma, J P (2010) PrayogtmakBhugolkiRooprekha, Rastogi Publications, Meerut.*
14. *Singh, R L & Dutta, P K (2012) PrayogatmakBhugol, Central Book Depot, Allahabad.*


# SEMESTER- II
# CC 3 : Human Geography

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Detailed exposure of contemporary relevance of cultural landscape.

**CO2:** In-depth knowledge of space and society of cultural regions.

**CO3:** Understanding the settlement pattern and population resource relationship.

| CC 3 : Human Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Meaning and Scope of Human Geography; Evolution of Man; Human Activities in Mountain and Desert Region. | 14 |

| | | |
|---|---|---|
| 2 | Races and Tribe; Major Tribes: Bushman and Eskimo, Santhal and Oraon. | 14 |
| 3 | Major Religion and Language; Major Cultural Regions of the World. | 10 |
| 4 | Population: Growth and Distribution, Demographic Transition Theory; | 12 |
| 5 | Types and Pattern of Rural Settlements; Urbanization and related problems | 10 |
| | **TOTAL** | 60 |

**Reading List :**


1. *Chandna, R.C. (2010) Population Geography, Kalyani Publisher.*
2. *Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur*
3. *Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.*
4. *Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.*
5. *Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.*
6. *Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.*
7. *Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.*
8. *Hussain, Majid (2012) Manav Bhugol, Rawat Publications, Jaipur.*


# CC 4 :Thematic Cartography

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Explain how maps work, conceptually and technically and will be able to understand science and art of cartography.

**CO2:** Recognize the benefits and limitations of Diagrammatic Data Presentation.

**CO3:** Understand and perform interpretation of thematic maps.

| **CC4 : Thematic Cartography (4 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Concept and Types of Cartograms, Properties, Types of Line Graph, Bar diagram and Circle Diagrams | 06 |
| 2 | Thematic Maps: Types and Properties of Choropleth and Isopleth. | 10 |
| 3 | Distribution Maps: Dot Method and Proportional Circles | 16 |
| 4 | Surveying: Concept and Properties of Plain Table, Prismatic Compass Survey and Leveling Survey. | 16 |
| | **TOTAL** | 48 |

**Reading List:**


1. Cuff J. D. and Mattson M. T., (1982) *Thematic Maps: Their Design and Production*, Methuen Young Books.
2. Dent B. D., Torguson J. S., and Holder T. W., (2008)*Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education.
3. Gupta K. K. and Tyagi V. C., (1992)*Working with Maps*, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., (2003)*Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall New Delhi.
5. Mishra R. P. and Ramesh A., (1989)*Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., (2010)*PrayogicBhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., (1999)*Elements of Practical Geography*, Kalyani Publishers, New Delhi.
8. Slocum T. A., Mcmaster R. B. and Kessler F. C., (2008)*Thematic Cartography and Geovisualization*(3rd Edition), Prentice Hall.
9. Tyner J. A., (2010) *Principles of Map Design*, The Guilford Press.
10. Sarkar, A. (2015) *Practical geography: A Systematic Approach.* Orient Black Swan Private Ltd., New Delhi.
11. Singh, L R & Singh R (1977): *Manchitra or PryaogatamekBhugol*, Central Book, Depot, Allahabad.
12. Bhopal Singh R L and Duttta P K (2012) PrayogatamakBhugol, Central Book Depot, Allahabad.


| | **Topics to be covered** |
|---|---|
| 1 | Construction of : Bar Diagram, Pie Diagram, Climograph and Hythergraph |
| 2 | Proportionate Circle, Chropleth and Isopleth Maps. |
| 3 | Plain Table Survey, Prismatic Compass Survey: Open and Closed Traverse |
| 4 | Record of Practical Works & Viva –Voce |

**Practical Record:** Record of the practical work given above.

**Reading List :**


1. Cuff J. D. and Mattson M. T., (1982) *Thematic Maps: Their Design and Production*, Methuen Young Books.
2. Dent B. D., Torguson J. S., and Holder T. W., (2008) *Cartography: Thematic Map Design* (6th Edition), Mcgraw-Hill Higher Education.
3. Gupta K. K. and Tyagi V. C., (1992) *Working with Maps*, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., (2003)*Cartography: Visualization of Geo-Spatial Data*, Prentice-Hall New Delhi.
5. Mishra R. P. and Ramesh A., (1989) *Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., (2010)*PrayogicBhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., (1999) *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
8. Slocum T. A., Mcmaster R. B. and Kessler F. C., (2008) *Thematic Cartography and Geovisualization*(3rd Edition), Prentice Hall.
9. Tyner J. A., (2010) *Principles of Map Design*, The Guilford Press.
10. Sarkar, A. (2015) *Practical geography: A Systematic Approach.* Orient Black Swan Private Ltd., New Delhi.
11. Singh, L R & Singh R (1977): *Manchitra or PryaogatamekBhugol*, Central Book, Depot, Allahabad.
12. Bhopal Singh R L and Duttta P K (2012) PrayogatamakBhugol, Central Book Depot, Allahabad.

# SEMESTER – III

## CC 5: Climatology& Oceanography

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Detailed understanding of climatic characteristics of atmosphere and classification of Climatic Region.

**CO2:** In-depth knowledge of upper atmospheric conditions and cyclonic features.

**CO3:** Understanding the characteristics of Ocean relief features and other characteristics of Oceans.

| **CC5 : Climatology & Oceanography (6 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Composition and Structure of the Atmosphere, Insolation, Humidity and Precipitation. | 08 |
| 2 | Concept and Types: Air Masses and Fronts; Cyclones: Tropical and Temperate. | 14 |
| 3 | Classification of Climate: Koppen'sand Thornthwaite's; Climatic Changes: Causes and Evidences. | 12 |
| 4 | Relief of the Ocean floor: Continental Shelf, Slope and Deep Sea Plain; Relief of the Indian and Atlantic Oceans. | 10 |
| 5 | Salinity of Ocean Water; Ocean Currents; Tides | 16 |
| | **TOTAL** | 60 |

**Reading List :**


1. Barry R. G. and Carleton A. M., (200) *Synoptic and Dynamic Climatology*, Routledge, UK.
2. Barry R. G. and Corley R. J., (1998) *Atmosphere, Weather and Climate*, Routledge, New York.
3. Critchfield H. J., (1987) *General Climatology*, Prentice-Hall of India, New Delhi.
4. Lutgens F. K., Tarbuck E. J. and Tasa D., (2009)*The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., (2002) *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., (1980)*An Introduction to Climate*, McGraw-Hill, US.
7. Gupta L. S., (2000) Jalvayu Vigyan, Hindi MadhyamKaryanvayNidishalya, Delhi Vishwa Vidhyalaya, Delhi.
8. Lal, D S., (2006) Jalvayu Vigyan, PrayagPustak Bhavan, Allahabad.
9. Vatal, M., (1986)BhautikBhugol, Central Book Depot, Allahabad.
10. Singh, S (2009): Jalvayu Vigyan, PrayagPustak Bhawan, Allahabad.

# CC6 : Geography of India

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Detailed exposure to the human and physical features of India.

**CO2:** In-depth knowledge of different resource base of India.

**CO3:** Understanding socio-cultural base of India.

| CC6 : Geography of India (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Physiographic Divisions; Drainage; Soil; | 08 |
| 2 | Climate- Origin and Mechanism of Indian Monsoon, Vegetation. | 10 |
| 3 | Agro-Climatic Regions; Salient Features of Indian Agriculture; Industrial Development; Automobile and Information Technology. | 12 |
| 4 | Population Growth and Distribution,Literacy | 08 |
| 5 | Geography of Bihar: Structure & Physiography; Characteristics and Problems of Agriculture, Problems of Flood and Drought; Population: Growth and Distribution | 22 |
| | **TOTAL** | 60 |

**Reading List :**


1. Deshpande C. D., (1992) India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. (2001) Geographical Dictionary of India. Vision Books, New Delhi.
3. Pathak, C. R. (2003) Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
5. Rao, B. P & Singh R. B. P (1997) Bihar Ka Bhaugoalik Swaroop, Vasundhara Prakashan, Gorakhpur.
6. Sharma, T. C. (2003) India - Economic and Commercial Geography. Vikas Publ., New Delhi.
8. Singh, R. L., (1971)India: A Regional Geography, National Geographical Society of India.
9. Singh, Jagdish, (2003)India - A Comprehensive & Systematic Geography, GyanodayaPrakashan, Gorakhpur.
10. Spate, O. H. K. and Learmonth A. T. A., (1967)India and Pakistan: A General and Regional Geography, Methuen.
11. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur.
12. Sharma, Nandeshwar (2007) BiharkiBhaugoalik Samiksha, Vasundhara prakashan, Gorakhpur.
13. Sinha, V.N.P, et. al. (2013)Bihar: Land, People and Economy, Rajesh Publication, New Delhi.
14. Sinha, V.N.P et al (2014) " Bihar Ka Bhugol" Rajesh Publication, New Delhi.
15. Tiwari, R.C. (2007) Geography of India. PrayagPustak Bhawan, Allahabad.
16. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., Jaipur & New Delhi.
17. Tiwari, R.C. (2007) Geography of India. PrayagPustak Bhawan, Allahabad.

# CC 7 : Statistical Methods in Geography

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** To differentiate between qualitative and quantitative information.

**CO2:** To know the nature of various data, different sources and methods of data collection.

**CO3:** To apply sampling methods for data collection.

**CO4:** To classify, summarize and produce various types of data tabulations.

**CO5:** To present data through graphical and diagrammatic formats.

**CO6:** To apply different forms of averages their relevance on descriptive data and geographical descriptive data as well.

**CO7:** To analyze the variations in spatial and non-spatial data.

**CO8:** To study the associations and cause/effect or impact from the data series

| **CC 7 : Statistical Methods in Geography (4 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Nature and Use of Data in Geography, Sources and Types of Data. Scale of Measurement: Nominal, Ordinal, Interval and Ratio Scale | 12 |
| 2 | Concept and Properties of Measures of Central Tendency: Mean, Median and Mode; Measures of Dispersion: Quartile Deviation, Standard Deviation. | 12 |
| 3 | Sampling Methods: Types of Sampling- Random, Systematic, Purposiveand Stratified. | 08 |
| 4 | Association and Correlation: Types and properties of Correlation- Pearson's and Spearman's Method; Regression Analysis. | 16 |
| | **TOTAL** | 48 |

**Reading List:**


1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., (1977) *Statistics in Geography: A Practical Approach*.
3. Hammond P. and McCullough P. S., (1978) *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
4. King L. S., (1969) *Statistical Analysis in Geography*, Prentice-Hall.
5. Mahmood A., (1977) *Statistical Methods in Geographical Studies*, Concept.
6. Pal S. K., (1998) *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
7. Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi
8. Silk J., (1979) *Statistical Concepts in Geography*, Allen and Unwin, London.

9. Spiegel M. R.: Statistics, *Schaum's Outline Series.*
10. Yeates M., (1974) An *Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.
11. Shinha, Indira (2007) Sankhyikibhugol. Discovery Publishing House, New Delhi

| CC 7 : Statistical Methods in Geography (Practical: 2 credits) | |
|---|---|
| 1. | Sources and Types of Data; Representation of Scale of Measurement: Nominal, Ordinal, Interval and Ratio Scale |
| 2. | Measures of Central Tendency: Mean, Median and Mode; Measures of Dispersion: Quartile Deviation and Standard Deviation. |
| 3. | Correlation- Pearson's and Spearman's Method; Simple Linear Regression Analysis |

**Reading List:**

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., (1977) *Statistics in Geography: A Practical Approach.*
3. Hammond P. and McCullagh P. S., (1978) *Quantitative Techniques in Geography: An Introduction,* Oxford University Press.
4. King L. S., (1969) *Statistical Analysis in Geography*, Prentice-Hall.
5. Mahmood A., (1977) *Statistical Methods in Geographical Studies,* Concept.
6. Pal S. K., (1998) *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
7. Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi
8. Silk J., (1979) *Statistical Concepts in Geography*, Allen and Unwin, London.
9. Spiegel M. R.: Statistics, *Schaum's Outline Series.*
10. Yeates M., (1974) An *Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.
11. Shinha, Indira (2007) Sankhyikibhugol. Discovery Publishing House, New Delhi

# SEMESTER – IV

## CC8 : Economic Geography

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Distinguish to different types of economic activities and their utilities.

**CO2:** Appreciate the factors responsible for the location and distribution of activities.

**CO3:** Examine the significance and relevance of theories in relation to the location of different economic activities

| CC8 : Economic Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Meaning and Scope of Economic Geography; Concept and Classification of Economic Activity; | 8 |
| 2 | Locational Theory of Agriculture (Von Thunen); Intensive Subsistence Farming, Commercial Grain Farming and Dairy Farming. | 14 |
| 3 | Industrial Location Theory (Weber); Major Industries- Iron & Steel, Cotton Textile, Automobile Industry. | 14 |
| 4 | International Trade and WTO; Globalization; Special Economic Zone (SEZ) | 12 |
| 5 | Means of Transport; Major Rail Routes, Trade Routes- Suez and Panama. | 12 |
| | **TOTAL** | 60 |

**Reading List:**


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


# CC9 : Environmental Geography

## Course Outcomes

**After the completion of the course, the student will have to:**

**CO1:** Conceptual knowledge of environmental geography and concept of ecosystem.

**CO2:** Detailed exposure of different components of Bio-geography and biodiversity.

**CC3:** Understand the exposure of human- environment relationship of tropical, temperate and monsoon ecosystems.

**CO4:** Understand in-depth knowledge of environmental issues and its causes and effects.

**CO5:** Understanding of the environmental policies and programs at local and global level

| CC9 : Environmental Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Definition and Scope of Environmental Geography, Components of Environment; Concept and Types of Ecosystem. | 06 |
| 2 | Biogeography- Meaning and Significance, Bio-energy Cycle, Concept of Zoo-geography, Bio-diversity and Hot-spots. | 12 |
| 3 | Man-Environment Relationships: Monsoon Region, Equatorial Region and Temperate | 12 |

| | | |
|---|---|---|
| | Region. | |
| 4 | Environmental Degradation: Causes and Impact, Natural Disaster: Drought, Flood and Earthquake. | 14 |
| 5 | Environmental Pollution: Air and Water, Environmental Management and Policies. | 16 |
| | **TOTAL** | 60 |

**Reading List:**


1. Chandna R. C., (2002) *Environmental Geography*, Kalyani, Ludhiana.
2. Cunninghum W. P. and Cunninghum M. A., (2004) *Principals of EnvironmentalScience: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
3. Goudie A., (2001) *The Nature of the Environment*, Blackwell, Oxford.
4. Mal, Suraj. and Singh, R.B. (Eds.) (2009) *Biogeography and Biodiversity*. Rawat Publication, Jaipur.
5. Miller G. T., (2004) *Environmental Science: Working with the Earth*, Thomson BrooksCole, and Singapore.
6. MoEF, (2006) *National Environmental Policy-2006*, Ministry of Environment andForests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer.
8. Odum, E. P. et al, (2005) *Fundamentals of Ecology*, Ceneage Learning India.
9. Singh S., (1997) *Environmental Geography*, PrayagPustak Bhawan. Allahabad.
10. UNEP, (2007) *Global Environment Outlook: GEO4: Environment for Development*, United Nations Environment Programme.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
12. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford & IBH Pub..
13. Singh, Savindra 2001. *Paryavaran Bhugol*, PrayagPustak Bhawan, Allahabad. (in Hindi).


## CC 10 : Research Methodology and Field Work

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Detailed exposure of new geographical landscape as study area.

**CO2:** In-depth knowledge of different field techniques.

**CO3:** Understanding the field ethics and different tools of field study.

| **CC 10 : Research Methodology and Field Work (4 credits)** | | |
|---|---|---|
| **Unit** | | **No. of Lectures** |
| 1 | Research: Meaning and its Types; Research Methodology: Merits and demerits of Quantitative and Qualitative techniques. | 10 |
| 2 | Field Techniques: Merits, demerits and Selection; Observation, Questionnaire, Schedule, and Interview Methods. | 14 |
| 3 | Case Study Method: Definition, Nature and Field tools. | 08 |
| 4 | Designing the Field Report: Aims and Objectives, Data Analysis, Interpretation and Report writing. | 16 |
| | **TOTAL** | 48 |

| CC 10 : Research Methodology and Field Work<br>(Practical: 2 credits) |
|---|
| **Practical :** |
| 1. Each student has to prepare an individual project report based on primary and secondary data collected during field work.<br>2. The duration of the field work should not exceed 10 days.<br>3. The word count of the report should be about **8000 to 12,000** excluding figures, tables, photographs, maps, references and appendices.<br>4. One copy of the report on A 4 size paper should be submitted in soft copy in the Department.<br>Students will prepare individual Project/ Tour Report. |

**Reading List:**


1. Creswell J., (1994) Research Design: Qualitative and Quantitative Approaches Sage Publications.
2. Dikshit, R. D. (2003) The Art and Science of Geography: Integrated Readings. Prentice-Hall of India, New Delhi.
3. Evans M., (1988) "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, Neela, (1993) Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
5. Mukherjee, Neela (2002) Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
6. Robinson A., (1998) "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2(2001).
8. Stoddard R. H., (1982) Field Techniques and Research Methods in Geography, Kendall/Hunt.
9. Wolcott, H. (1995) The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.


# SEMESTER – V

## CC 11: Regional Planning and Development

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Understand and identify regions as an integral part of geographical study and conceptualize the Regional Planning.

**CO2:** Analyzing the concept of regions and regionalization and gain knowledge of varied indiacators of measurement of development and regional disparity.

**CO3:** Conceptualized planning regionbs and different methods and schemes of delination and charecteristics of Planning regions with special reference to Insdia.

**CO4:** Build an idea about different theories and models for regional planning.

**CO5:** Have accuinted with different Policies and Programmes for regional development in India.

| CC 11 : Regional Planning and Development<br>(6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Concept of Region, Types of Region and Regional Planning. | 10 |
| 2 | Regionalization: Concept and Methods of Delineation; Indicators of Development and Regional Disparity. | 14 |

| | | |
|---|---|---|
| 3 | Planning Region: Characteristics of an Ideal Planning Region; Delineation of Planning Regions of India. | 16 |
| 4 | Models for Regional Planning- Growth Pole Model of Perroux, Rostow's Model, PURA by A.P.J. Abdul Kalam. | 12 |
| 5 | Regional Planning for - Hill Area, Drought Prone Area and Tribal Area. | 8 |
| | **TOTAL** | 60 |

**Reading List:**


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


# CC 12 : Remote Sensing and GIS

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Explain principles of remote sensing, different satellite systems and sensors;

**CO2:** Understand concept and methods of image processing, enhancement and classification and interpretation of satellite images;

**CO3:** Application of Image preprocessing techniques for land use land cover and urban studies.

| **CC 12 : Remote Sensing and GIS (4 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Remote Sensing: Definition and Basic Concepts; Historical Development and Significance of Remote Sensing in Geographical Studies. | 10 |
| 2 | Remote Sensing Platforms; Sensors; Satellites: LANDSAT, IRS. | 10 |
| 3 | Aerial Photographs: Types and Utility; Elements of Aerial Photo Interpretation- Size, Shape, Tone, Texture, Pattern and Location Association. | 12 |
| 4 | Geographical Information System (GIS): GIS and its Components; Raster and Vector Data Structure, Application of Remote Sensing and GIS. | 16 |
| | **TOTAL** | 48 |

**Reading List:**


1. Campbell J. B., (2007) *Introduction to Remote Sensing*, Guildford Press.
2. Jensen J. R., (2004) *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.
3. Joseph, G. (2005) *Fundamentals of Remote Sensing*, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., (2004) *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
5. Maltiyar. K. K &Maltiyar S. R., (2019) *ConceptofCartography, Remote Sensing and GIS,* Rajesh publication, New Delhi.
6. Nag P. and Kudra, M., (1998) *Digital Remote Sensing*, Concept, New Delhi.
7. Rees W. G., (2001) *Physical Principles of Remote Sensing*, Cambridge University Press.
8. Singh R. B. and Murai S., (1998) *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
9. Wolf P. R. and Dewitt B. A., (2000) *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.
10. Sarkar, A. (2015) *Practical Geography: A Systematic Approach.* Orient Black Swan Private Ltd., New Delhi.
11. Chauniyal, D.D. (2010) *SudurSamvedanevamBhogolikSuchanaPranali*, Sharda Pustak Bhawan, Allahabad.


| **CC 12 : Remote Sensing and GIS**<br>**(Practical: 2 credits)** |
|---|
| **Practical :**<br>**Practical Record:** A Practical file consisting of two exercises:<br>1. Aerial photo Interpretation<br>2. Satellite images Interpretation |

**Reading List:**


1. Campbell J. B., (2007) *Introduction to Remote Sensing*, Guildford Press.
2. Jensen J. R., (2004) *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.
3. Joseph, G. (2005) *Fundamentals of Remote Sensing*, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., (2004) *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
5. Maltiyar. K. K &Maltiyar S. R., (2019) Concept of *Cartography, Remote Sensing and GIS,* Rajesh publication, New Delhi.
6. Nag P. and Kudra, M., (1998) *Digital Remote Sensing*, Concept, New Delhi.
7. Rees W. G., (2001) *Physical Principles of Remote Sensing*, Cambridge University Press.
8. Singh R. B. and Murai S., (1998) *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
9. Wolf P. R. and Dewitt B. A., (2000) *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.
10. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.
11. Chauniyal, D.D. (2010) SudurSamvedanevamBhogolikSuchanaPranali, Sharda Pustak Bhawan, Allahabad.

# SEMESTER – VI

## CC 13 : Evolution of Geographical Thought

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** To in depth understanding about the evolution of the philosophy geography.

**CO2:** Establishing relationship of Geography with other disciplines and man-environment relationships.

**CO3:** Detailed knowledge about the paradigms and debates in the geographical studies.

**CO4:** Discussing the evolution of geographical thought from ancient to modern times.

**CO5:** Understanding of recent traditions in geography such as dualism, quantitative revolution, Behavioral and Applied approaches in Geography

| **CC 13 : Evolution of Geographical Thought (6 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Meaning and Definition of Geography; Relation of Geography with Other Sciences; Man-Nature Relationship. | 08 |
| 2 | Contribution of Ancient Geographers: Eratosthenes, Ptolemy, Strabo, Al-Idrasi and Al-Masudi. | 12 |
| 3 | Contribution of Modern Geographers: Humbolt, Ritter, Ratzel, Blache and Mackinder. | 14 |
| 4 | Dualism in Geography; Physical Vs Human Geography, Determinism Vs Possiblism, Neo-Determinism, Systematic Vs Regional. | 16 |
| 5 | Quantitative Revolution, Behaviouralism, Applied Geography. | 10 |
| | **TOTAL** | 60 |

**Reading List:**


1. Adhikari, S., (2015) *Fundamental of Geographical Thoughts, Orient Black Swan, New Delhi.*
2. Arentsen M., Stam R. and Thuijis R., 2000: *Post-modern Approaches to Space*, ebook.
3. Bhat, L.S. (2009) Geography in India (Selected Themes). Pearson
4. Bonnett A., (2008) *What is Geography?* Sage.
5. Dikshit R. D., (1997) Geographical Thought: A Contextual History of Ideas, Prentice– Hall India.
6. Hartshone R., (1959) *Perspectives of Nature of Geography*, Rand MacNally and Co.
7. Holt-Jensen A., (2011) *Geography: History and Its Concepts: A Students Guide*, SAGE.
8. Johnston R. J., (Ed.): *Dictionary of Human Geography*, Routledge.
9. Johnston R. J., (1997) *Geography and Geographers, Anglo-American Human Geography since 1945*, Arnold, London.
10. Kapur A., (2001) *Indian Geography Voice of Concern*, Concept Publications.
11. Kaushik, S.D, (2012) *Bhaugoolik Vichardhara Avam Vidhitantra*, Rastogi Publication, Meerut.
12. Martin Geoffrey J., (2005) *All Possible Worlds: A History of Geographical Ideas*, Oxford.
13. Soja, Edward (1989) *Post-modern Geographies,* Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

# CC 14 : Disaster Management

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Understand about the various disasters in the country.
**CO2:** To provide thorough understanding about the human responses to the disasters.
**CO3:** Understanding of in-depth knowledge about the disasterscapes through fieldwork.

| CC 14 : Disaster Management (4 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Disasters: Definition and Concepts of Hazards and Disaster; Risk and Vulnerability. | 12 |
| 2 | Disasters in India: Causes, Impact and Distribution; Flood, Drought, Earthquake and Cyclone. | 12 |
| 3 | Human Induced Disasters: Causes, Impact, and Distribution: Moral disasters, Fire, Road Accidents. | 12 |
| 4 | Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'tsDuring and Post Disasters | 12 |
| | **TOTAL** | 48 |

**Reading List:**


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


| CC 14 : Disaster Management (Practical: 2 credits) | |
|---|---|
| **Practical**<br>The Project Report Based on field work / Case Studies of one of the following Disasters:<br>1. Flood | |

| | |
|---|---|
| 2. Drought<br>3. Earthquake<br>4. Erosion by Rivers<br>5. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents, Problem of Solid Waste. | |

## Discipline Specific Elective (DSE) (4)

## SEMESTER – V

## DSE-1 (Any One Paper)
## DSE1 : A.Hydrology and Oceanography

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Understand the basic components of hydrological cycle and learn best practices of integrated watershed management,

**CO2:** Explain various components of water balance and management of river basins,

**CO3:** Identify different types of soil, distribution and management of soil resources.

| DSE1 : A. Hydrology and Oceanography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Hydrology and Oceanography: Meaning and Scope; Hydrological Cycle; Human impact on hydrological cycle. | 10 |
| 2 | Surface Water and Underground Water: Hydrological Input and Output | 10 |
| 3 | River Basin and Problems of Regional Hydrology: Characteristics of river basins; Basin surface run-off; Measurement of river discharge. | 16 |
| 4 | Oceanic Movements: Waves, Currents and Tides. | 12 |
| 5 | Ocean Salinity: Distribution and Determinants; Coral Reefs and Marine Deposits. | 12 |
| | **TOTAL** | 60 |

**Reading List:**


1. Andrew. D. ward and Stanley, Trimble (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Karanth, K.R., 1988: Ground Water: Exploration, Assessment and Development, Tata- McGraw Hill, New Delhi.
3. Ramaswamy, C. (1985): Review of floods in India during the past 75 years: A Perspective. Indian National Science Academy, New Delhi.

4. Rao, K.L., 1982: India's Water Wealth 2nd edition, Orient Longman, Delhi,.
5. Singh, Vijay P. (1995): Environmental Hydrology. Kluwar Academic Publications, The Netherlands.
6. Anikouchine W. A. and Sternberg R. W., 1973: *The World Oceans: An Introduction to Oceanography*, Prentice-Hall.
7. Garrison T., 1998: *Oceanography*, Wordsworth Company, Belmont.
8. Kershaw S., 2000: *Oceanography: An Earth Science Perspective*, Stanley Thornes, UK.
9. Pinet P. R., 2008: *Invitation to Oceanography* (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
10. Sharma R. C. and Vatal M., 1980: *Oceanography for Geographers*, Chaitanya Publishing House, and Allahabad.
11. Sverdrup K. A. and Armbrust, E. V., 2008: *An Introduction to the World Ocean*, McGraw Hill, Boston.
12. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Landscape ecology and water management. Proceedings of IGU Rohtak Conference, Volume 2. Advances in Geographical and Environmental Studies, Springer.

## DSE1 : B. Population Studies

**(6 credits)**

**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** This paper would bring an understanding of Population Geography along with relevance of Demographic data.

**CO2:** The students would get an understanding of distribution and trends of population growth in the developed and less developed countries, along with population theories.

**CO3:** The students would get an understanding of the dynamics of population.

**CO4:** An understanding of the implications of population composition in different regions of the world.

**CO5:** An appreciation of the contemporary issues in the field of population studies.

| **DSE1 : B. Population Studies (6 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Population Geography: Nature and Scope; Sources of Data: Census, Vital Statistics and NSS. | 12 |
| 2 | Population: Size, Distribution and Growth-Determinants, Patterns | 14 |
| 3 | Theories of Growth – Malthusian Theory and Demographic Transition Theory. Population Dynamics: Fertility, Mortality and Migration: Measures, Determinants and Implications. | 12 |
| 4 | Population Composition and Characteristics- Age-Sex Composition; Rural and Urban Composition; Literacy. | 10 |
| 5 | Contemporary Issues – Ageing of Population; Declining Sex Ratio; HIV/AIDS. | 12 |
| | **TOTAL** | 60 |

**Reading List:**

1. Barrett H. R., (1995) *Population Geography*, Oliver and Boyd.
2. Bhende A. and Kanitkar T., (2000) *Principles of Population Studies*, Himalaya Publishing House.
3. Chandna R. C. and Sidhu M. S., (1980) *An Introduction to Population Geography*, Kalyani Publishers.
4. Clarke J. I., (1965) *Population Geography*, Pergamon Press, Oxford.

5. Jones, H. R., (2000) *Population Geography,* 3rd ed. Paul Chapman, London.
6. Lutz W., Warren C. S. and Scherbov S., (2004)*The End of the World Population Growth in the 21st Century*, Earthscan
7. Newbold, K. B., (2009) *Population Geography: Tools and Issues*, Rowman and Littlefield Publishers.
8. Pacione, M., (1986) *Population Geography: Progress and Prospect*, Taylor and Francis.
9. Wilson, M. G. A., (1968) *Population Geography*, Nelson.
10. Panda, B. P., (1988) *Janasankya Bhugol,* M P Hindi GranthAcademy,Bhopal.
11. Maurya, S. D., (2009) *Jansankya Bhugol*, Sharda Putak Bhawan, Allahabad.
12. Chandna, R. C., (2006) *Jansankhya Bhugol*, Kalyani Publishers, Delhi.

# SEMESTER – VI

## DSE 2 (Any One Paper)

## DSE 2 : A. Geography of Health and Wellbeing

**(6 credits)**

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Detailed exposure of health geography and environment.

**CO2:** In-depth knowledge of health risk and exposure.

**CO3:** Understanding the impact of climate change and human health.

**CO4:** Explain the social problems and the welfare programs and policies.

| DSE 2 : A. Geography of Health and Wellbeing (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Perspectives on Health: Concept, linkages with environment, development and health; driving forces in health and environmental trends - population dynamics, urbanization, poverty and inequality. | 12 |
| 2 | Pressure on Environmental Quality and Health: Human activities and environmental pressure on land use and agricultural development; Industrialization; transport and energy; | 14 |
| 3 | Health and Disease Pattern in Environmental Context with special reference to India, Exposure and Health Risks: Air pollution; household wastes, water, housing, workplace. | 08 |
| 4 | Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents. | 14 |
| 5 | Food production and Nutrition, Food Overeating and deficiency diseases, Communicable and Lifestyle related diseases. | 12 |
| | **TOTAL** | 60 |

**Reading List:**

1. Akhtar Rais (Ed.), (1990) *Environment and Health Themes in Medical Geography,* Ashish Publishing House, New Delhi.
2. Avon Joan L. and Jonathan A Patzed. (2001*) Ecosystem Changes and Public Health,*Baltimin, John Hopling Unit Press(ed).
3. Bradley, D., (1977) *Water, Wastes and Health in Hot Climates*, John Wiley Chichesten.
4. Christaler George and HristopolesDionissios, (1998) *Spatio Temporal Environment Health Modelling,* Boston Kluwer Academic Press.
5. Cliff, A.D. and Peter, H., (1988) *Atlas of Disease Distributions,* Blackwell Publishers, Oxford.
6. Gatrell, A., andLoytonen, (1998) *GIS and Health*, Taylor and Francis Ltd, London.

7. Hardham T. and Tannav M, (eds) *Urban Health in Developing Countries*; Progress, Projects, Earthgoan, London.
8. Murray C. and A. Lopez, (1996) *The Global Burden of Disease,* Harvard University Press.
9. Moeller Dade Wed., (1993) *Environmental Health, Cambridge,* Harward Univ. Press.
10. Phillips, D.andVerhasselt, Y., (1994) *Health and Development*, Routledge, London.
11. Tromp, S., (1980) *Biometeorology: The Impact of Weather and Climate on Humans and their Environment,* Heydon and Son.

## DSE2 : B. Resource Geography
**(6 credits)**
**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** Understand Concept of Resources, its classification and role of technology in resource development;

**CO2:** Understand the spatial distribution, utilization, problems and management of different resources.

**CO3:** Understand the need and techniques of Conservation of natural resources in term of sustainable development concept.

| DSE2 : B. Resource Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Natural Resource: Concept, Classification and Role of Technology in Resource Development. | 12 |
| 2 | Distribution, Utilization, Problems and Management of Land Resources and Water Resources | 12 |
| 3 | Distribution, Utilisation, Problems and Management of Forests and Energy Resources. | 08 |
| 4 | Distribution and Production of Mineral resources- Iron Ore, Copper & Manganese. | 14 |
| 5 | Conservation of Natural Resources – Soil, water and energy conservation, Sustainable Resource Development. | 14 |
| | **TOTAL** | 60 |

**Reading List:**

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

8. Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge University Press, New York.
9. Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge.London.

# Semester VI

## DSE 3 (Any One Paper)
## DSE3 : A. Political Geography
**(6 credits)**

### Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Learn the concept of nation and state and geopolitical theories.

**CO2:** Understand the different dimensions of electoral geography and resource conflicts.

**CO3:** Have sound knowledge of politics of displacement, focusing on dams and SEZ.

| DSE3 : A. Political Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Political Geography: Definition, Nature and Scope; Concept of Nation and State; Attributes of State, Frontiers and Boundaries; | 16 |
| 2 | Concept of Geopolitics; Theories-Heartland and Rimland. | 16 |
| 3 | Electoral Geography – Geography of Voting, Geographic Influences on voting pattern; Geography of Representation. | 08 |
| 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. | |
| | **TOTAL** | 60 |

**Reading List:**

1. Agnew J., 2002: *Making Political Geography*, Arnold.
2. Agnew J., Mitchell K. and Toal G., 2003: *A Companion to Political Geography*, Blackwell.
3. Cox K. R., Low M. and Robinson J., 2008: *The Sage Handbook of Political Geography*, Sage Publications.
4. Cox K., 2002: *Political Geography: Territory, State and Society*, Wiley-Blackwell
5. Gallaher C., et al, 2009: *Key Concepts in Political Geography*, Sage Publications.
6. Glassner M., 1993: *Political Geography*, Wiley.
7. Jones M., 2004: *An Introduction to Political Geography: Space, Place and Politics*, Routledg .
8. Mathur H M and M MCernea (eds.) Development, Displacement and Resettlement – Focus on AsianExperience, Vikas, Delhi
9. Painter J. and Jeffrey A., 2009: *Political Geography*, Sage Publications.
10. Taylor P. and Flint C., 2000: *Political Geography*, Pearson Education.
11. Verma, M K (2004): Development, Displacement and Resettlement, Rawat Publications, Delhi

12. Hodder Dick, Sarah J Llyod and Keith S McLachlan (1998), *Land Locked States of Africa andAsia*(vo.2), Frank Cass.

# DSE3 : B. Agricultural Geography

**(6 credits)**

**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** Conceptualize the agriculture and its determinants;

**CO2:** Get the overview of Indian and World agriculture regions and systems;

**CO3:** Have sound knowledge of agriculture revolutions and food security

| DSE3 : B. Agricultural Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Definition, Nature and Scope of Agriculture Geography. Origin and Development of Agriculture. | 10 |
| 2 | Determinants of Agriculture: Physical, Technological and Institutional; | 08 |
| 3 | Agricultural Regions of India: Agro-Climatic and Agricultural Productivity Regions, Crop Combination Regions. | 12 |
| 4 | Agricultural Systems of the World: Whittlesey's Classification and Von Thunen's Model and its Relevance. | 14 |
| 5 | Agricultural Revolutions in India: Green Revolution, White Revolution and Blue Revolution. | 16 |
| | **TOTAL** | 60 |

**Reading List:**

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

# DSE 4 Project/ Dissertation

# Extra DSE papers (may be incorporated)

# DSE A Social Geography

**(6 credits)**

**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** Get Knowledge of the social geography and social diversity.

**CO2:** Appraise the key concepts of social geography in regional context; geographic factors underlying patterns of social well-being and inclusive development.

**CO3:** Explain the social problems and the welfare programs and policies.

| Social Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Social Geography: Definition, Nature and Scope, Peopling Process of India: Technology and Occupational Change; Migration. | 16 |
| 2 | Social Categories: Caste, Religion and Race: Their Spatial distribution | 16 |
| 3 | Geographies of Welfare and Social Wellbeing: Concept and Components. | 08 |
| 4 | Healthcare, Housing and Education:-Concept and Problems. | 10 |
| 5 | Social Geographies of Inclusion and Exclusion, Slums, Communal Conflicts and Crime. | 10 |
| | **TOTAL** | 60 |

**Reading List:**


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


# DSE Urban Studies

**(6 credits)**

**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** Understand the fundamentals and patterns of urbanization.

**CO2:** Learn the functional classification of cities and central place theories.

**CO3:** Know contemporary problems of Delhi, Mumbai, Kolkata and Chennai.

| Urban Studies (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Urban geography: Definition, nature and scope, Patterns of Urbanization in developed and developing countries. | 16 |
| 2 | Theories related to Urbanization- Burge's, Harris & Ulman, Hoyt. | 16 |
| 3 | Functional classification of cities: Quantitative and Qualitative Methods. | 08 |
| 4 | Urban Issues: Problems of Housing, Slums, and Transport. | 10 |
| 5 | Case studies of Delhi, Patna and Gaya with reference to Urban Issues | 10 |
| | **TOTAL** | 60 |

**Reading List:**


1. Fyfe N. R. and Kenny J. T., (2005) *The Urban Geography Reader*, Routledge.
2. Graham, S. &Marvin S., (2001) *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition,* Routledge.
3. Hall T., (2006) *Urban Geography,* Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., (2008)*Urban Geography*, John Wiley.
5. Knox P. L. and McCarthy L., (2005) *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall, New York.
6. Knox P. L. and Pinch S., (2006) *Urban Social Geography: An Introduction,* Prentice-Hall.
7. Pacione M., (2009) *Urban Geography: A Global Perspective,* Taylor and Francis.
8. Sassen S., (2001) *The Global City: New York, London and Tokyo,* Princeton University Press.
9. Ramachandran R (1989)*Urbanisation and Urban Systems of India*, Oxford University Press, New Delhi
10. Ramachandran, R., (1992)*The Study of Urbanisation*, Oxford University Press, Delhi
11. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
12. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks andresilience in Asian megacities. Advances in Geographical and Environmental Studies, Springer.
13. Sinha, V.N.P., Verma, U. & Sahay, A., (2017) *Introduction to settlement Geography, Rajesh Publication, New Delhi.*
14. Sinha, M.M.P &Bala, Seema, (2018) NagariyaBhoogol, Rajesh Publication, New Delhi.

# Generic Electives

## SEMESTER – I

## GE1: Resource Geography
**(6 credits)**
**Course Outcomes**

**After the completion of the course, the student will be able to:**

**CO1:** Understand Concept of Resources, its classification and role of technology in resource development;

**CO2:** Understand the spatial distribution, utilization, problems and management of different resources.

**CO3:** Understand the need and techniques of Conservation of natural resources in term of sustainable development concept.

| GE1 : Resource Geography (6 credits) | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Natural Resource: Concept, Classification and Role of Technology in Resource Development. | 12 |
| 2 | Distribution, Utilization, Problems and Management of Land Resources and Water Resources | 12 |
| 3 | Distribution, Utilisation, Problems and Management of Forests and Energy Resources. | 08 |
| 4 | Distribution and Production of Mineral resources- Iron Ore, Copper & Manganese. | 14 |
| 5 | Conservation of Natural Resources – Soil, water and energy conservation, Sustainable Resource Development. | 14 |
| | **TOTAL** | 60 |

**Reading List:**


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

# GE2: Agricultural Geography

**(6 credits)**

## Course Outcomes

**After the completion of the course, the student will be able to:**

**CO1:** Conceptualize the agriculture and its determinants;

**CO2:** Get the overview of Indian and World agriculture regions and systems;

**CO3:** Have sound knowledge of agriculture revolutions and food security

| **GE2 : Agricultural Geography (6 credits)** | | |
|---|---|---|
| **Unit** | **Topics to be covered** | **No. of Lectures** |
| 1 | Definition, Nature and Scope of Agriculture Geography. Origin and Development of Agriculture. | 10 |
| 2 | Determinants of Agriculture: Physical, Technological and Institutional; | 08 |
| 3 | Agricultural Regions of India: Agro-Climatic and Agricultural Productivity Regions, Crop Combination Regions. | 12 |
| 4 | Agricultural Systems of the World: Whittlesey's Classification and Von Thunen's Model and its Relevance. | 14 |
| 5 | Agricultural Revolutions in India: Green Revolution, White Revolution and Blue Revolution. | 16 |
| | **TOTAL** | 60 |

**Reading List:**


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