

**SYLLABUS**  
*for*  
**Choice Based Credit System**  
**(CBCS)**  
**On the basis of**  
**Outcome Based Education**  
**(OBE)**  
**GEOGRAPHY HONOURS(B.A.)**

**PATNA WOMEN'S COLLEGE**

**Autonomous**

**PATNA UNIVERSITY**

3<sup>rd</sup> Cycle NAAC Accredited at 'A' Grade with CGPA 3.58/4

*"College with Potential for Excellence" (CPE) Status Accorded by UGC*

## **Vision**

Rooted in the life, vision, and teachings of Jesus Christ and inspired by Mother Veronica, the foundress of the Apostolic Carmel, Patna Women's College strives to become a centre of academic excellence in higher education, social responsibility, and empowerment of women.

## **Mission Statement**

Patna Women's College, the first college for women in Bihar, is committed to the holistic development of women so as to make an effective contribution to the creation of a better society.

To this end, we strive

- To become a center of excellence in higher education for women in an atmosphere of autonomy.
- To excel in teaching-learning, research, and consultancy.
- To provide education that promotes capacity building and holistic development of a person.
- To offer subjects for competency building and motivate/animate a workforce imbued with human values.
- To promote patriotism, communal harmony and cultural integration to maintain a free and peaceful atmosphere on the campus.
- To train the students in creative arts, social service, critical thinking, and leadership in order to make an effective contribution to the creation of a new and value-based society.
- To create women leaders and to make them agents of social change.
- To develop skill oriented and value-based courses, for the all-round development of individuals.
- To promote academic exchange and academia-industry interface.
- To form young women who are 'always wise' and who will dare to 'go ahead and conquer knowledge' through, competence, commitment, delicate conscience, and compassion.

## **B.A. (Honours) Geography**

**Note: 1 credit = 15 hours**

1. Theory paper: 6 credits each (5Theory and 1 Tutorial).
2. Tutorial group of each theory paper should have a group size of 8 students.
3. Practical paper: 6 credits each (4Theory and 2 Practical).
4. Practical paper will not have tutorials.

### **Core Courses (6 credits each)**

**Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.

#### **Semester I**

1. Geomorphology
2. Cartographic Techniques (Practical)

#### **Semester II**

3. Human Geography
4. Thematic Cartography (Practical)

#### **Semester III**

5. Climatology
6. Statistical Methods in Geography (Practical)
7. Geography of India

#### **Semester IV**

8. Economic Geography
9. Environmental Geography
10. Remote Sensing and GIS (Practical)

#### **Semester V**

11. Regional Planning and Development
12. Research Methodology and Field Study Tour (Practical)

## **Semester VI**

13. Evolution of Geographical Thought
14. Disaster Management based Project Work (Practical)

### **Generic Elective Papers (GE) (6 credits each)**

**Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/ subject and vice versa and such electives may also be referred to as Generic Elective.

## **Semester I**

1. Disaster Management

## **Semester II**

2. Regional Planning and Development

## **Semester III**

3. Climate Change: Vulnerability and Adaptation

## **Semester IV**

4. Geography of India

### **Discipline Specific Elective (DSE) (6 credits each)**

**Discipline Specific Elective (DSE) Course:** Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).

## **Semester V**

### **DSE-1**

1. Population Geography / Resource Geog.

### **DSE-2**

2. Urban Geography / Agricultural Geog.

## **Semester VI**

### **DSE-3**

3. Social Geography / Hydrology & Oceanography

### **DSE-4**

4. Dissertation / Geography of Health and Wellbeing

## **Skill Enhancement Course (SEC)(2Credits)**

Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide **value-based and/or skill-based knowledge**.

## **Semester III**

1. Inter Religious Studies(Value based)

## **Semester IV**

2. Geographical Information System (Practical)

Sem .	Core Course (14) <u>6 Credits each</u>	Ability Enhancement Compulsory Course AECC (2) <u>2 Credits each</u>	Skill Enhancement Course SEC (2) <u>2 Credits each</u>	Discipline Specific Elective DSE (4) <u>6 Credits each</u>	Generic Elective GE (4) <u>6 Credits each</u>
I	<b>GEOG CC101 :</b> Geomorphology	English/ MIL Communication/ Environmental Science			<b>GEOG GE101 :</b> Disaster Management
	<b>GEOG CC102 :</b> Cartographic Techniques(P)				
II	<b>GEOG CC203 :</b> Human Geography	English/ MIL Communication/ Environmental Science			<b>GEOG GE202 :</b> Regional Planning and Development
	<b>GEOG CC204 :</b> Thematic Cartography (P)				
III	<b>GEOG CC305 :</b> Climatology		<b>IRS SEC301</b> : Inter- Religious Studies (Value based)		<b>GEOG GE303 :</b> Climate Change: Vulnerability and Adaptation
	<b>GEOG CC306 :</b> Statistical Methods in Geog. (P)				
	<b>GEOG CC307 :</b> Geography of India				
IV	<b>GEOG CC408 :</b> Economic Geography		<b>GEOG SEC402 :</b> Geographical Information System (P)(Skill based)		<b>GEOG GE404 :</b> Geography of India
	<b>GEOG CC409 :</b> Environmental Geography				
	<b>GEOG CC410 :</b> Remote Sensing & GIS (P)				

<b>V</b>	<b>GEOG CC511 :</b> Regional Planning and Development			<b>GEOG DSE501</b> : Population Geog./ Resource Geog.	
	<b>GEOG CC512 :</b> Research Methodology & Field Study Tour (P)			<b>GEOG DSE502</b> : Urban Geog./ Agricultural Geog.	
<b>VI</b>	<b>GEOG CC613 :</b> Evolution of Geographical Thought			<b>GEOG DSE603</b> : Social Geog./ Hydrology & Oceanography	
	<b>GEOG CC614 :</b> Disaster Management based Project Work (P)			<b>GEOG DSE604</b> : Dissertation / Geog. Of Health & Well-being	

### Course Structure for B.A. Geography (Hons.)

<u>Semester -I</u>	<u>Semester -II</u>
<b>GEOG CC101 :</b> Geomorphology	<b>GEOG CC203 :</b> Human Geography
<b>GEOG CC102 :</b> Cartographic Techniques(Practical)	<b>GEOG CC204 :</b> Thematic Cartography (Practical)
<b>ENG AEC101 :</b> English Communication <b>HIN AEC101 :</b> fgUnh O;kdj.k vkSj IEizs"k.k	<b>EVS AEC202 :</b> Environmental Science

<b>GEOG GE101 : Disaster Management</b>	<b>GEOG GE202 : Regional Planning and Development</b>
<b><u>Semester -III</u></b>	
<b>GEOG CC305 : Climatology</b>	<b>GEOG CC408 : Economic Geography</b>
<b>GEOG CC306 : Statistical Methods in Geography (Practical)</b>	<b>GEOG CC409 : Environmental Geography</b>
<b>GEOG CC307 : Geography of India</b>	<b>GEOG CC410 : Remote Sensing &amp; GIS (Practical)</b>
<b>IRS SEC301 : Inter-Religious Studies (Value Based)</b>	<b>GEOG SEC402 : Geographical Information System (Practical)</b>
<b>GEOG GE303 : Climate Change: Vulnerability and Adaptation</b>	<b>GEOG GE404 : Geography of India</b>
<b><u>Semester -V</u></b>	
<b>GEOG CC511 : Regional Planning and Development</b>	<b>GEOG CC613 : Human Geography</b>
<b>GEOG CC512 : Research Methodology and Field Study Tour (Practical)</b>	<b>GEOG CC614 : Thematic Cartography (Practical)</b>
<b>GEOG DSE501 : Population Geog/Resource Geog.</b>	<b>GEOG DSE603 : Social Geog/Hydrology &amp; Oceanography</b>
<b>GEOG DSE502 : Urban Geog/Agricultural Geog</b>	<b>GEOG DSE604 : Dissertation / Geog. of Health and Wellbeing</b>

**Details of Credits for Courses under B.A., B.Sc., B.Com.**

**Honours**



## Geography

Semester	Course	Theory	Practical	Tutorial	Total Credits
<b><u>I. Core Course (14 Papers) – 06 credits each</u></b>					
<b>I</b>	1. Geomorphology	5	-	1	6
	2. Cartographic Techniques(Practical)	4	2	-	6
<b>II</b>	3. Human Geography	5	-	1	6
	4. Thematic Cartography (Practical)	4	2	-	6
<b>III</b>	5. Climatology	5	-	1	6
	6. Statistical Methods in Geography (Practical)	4	2	-	6
	7. Geography of India	5	-	1	6
<b>IV</b>	8. Economic Geography	5	-	1	6
	9. Environmental Geography	5	-	1	6
	10. Remote Sensing and GIS (practical)	4	2	-	6
<b>V</b>	11. Regional Planning and Development	5	-	1	6
	12. Research Methodology and Field Study Tour (Practical)	4	2	-	6
<b>VI</b>	13. Evolution of Geographical Thought	5	-	1	6
	14. Disaster Management based on Project Work (Practical)	4	2	-	6
<b><u>II. Elective Course – 06 credits each</u></b>					
<b>A. 1. Discipline Specific Elective- DSE(4 papers)</b>					
<b>V</b>	1. Population Geography / Resource Geog.	5	-	1	6
	2. Urban Geography / Agricultural Geog.	5	-	1	6
<b>VI</b>	3. Social Geography / Hydrology & Oceanography	-	-	-	6
	4. Dissertation/Geography of Health and Wellbeing	5	-	1	6

	<b>B. 1. Generic Elective / Interdisciplinary (4 papers)</b>				
<b>I</b>	1. Disaster Management	5	-	1	6
<b>II</b>	2. Regional Planning and Development	5	-	1	6
<b>III</b>	3. Climate change : Vulnerability& Adaptation	5	-	1	6
<b>IV</b>	4. Geography of India	5	-	1	6
<b>III. Ability Enhancement Courses – 02 credits each</b>					
	<b>1. Ability Enhancement Compulsory (AECC)</b>				
<b>I</b>	English / Hindi Communication	2			2
<b>II</b>	Environmental Science	2			2
	<b>II. Skill Enhancement Course (SEC)</b>				
<b>III</b>	1. Inter Religious Studies	2	-	-	2
<b>IV</b>	2. Geographical Information system	-	2	-	2
	<b>TOTAL</b>				<b>140</b>

Institute should evolve a system/policy about ECA / General Interest / Hobby / Sports / NCC / NSS / related courses on its own.

wherever there is practical there will be no tutorial and vice-versa.

## GEOGRAPHY HONOURS

## **Programme Outcome (PO) of B.A. Geography**

**The Bachelor of Arts in Geography Programme offered by the department aims**

- PO1:** To empower students with a thorough knowledge base of the discipline.
- PO2:** To enable the students with knowledge and skill for spatial thinking, geographical understanding, and systematic analysis to navigate real world problems and contribute to society in a meaningful way.
- PO3:** To provide the students with a comprehensive knowledge about geography as a discipline – both its physical and human aspects as well as its contemporary trends.
- PO4:** To prepare students for a gainful employment and meaningful research.
- PO5:** To become great citizens, policy makers, environmentalists, Social Scientists, Social entrepreneur, and improve the life of people by understanding the human society and environment.

## **Programme Specific Outcome (PSO) of B.A. Geography**

**The Bachelor of Arts in Geography Programme will enable the students:**

- PSO1:** To understand complex interactions between physical environment and people around the world.
- PSO2:** To distinguish and classify human characteristics, human activities and processes, and interpret their spatial distribution on the Earth's surface.
- PSO3:** To design maps and use them in analyzing and interpreting various patterns of physical and human characteristics on the Earth's surface.
- PSO4:** To learn to apply geospatial tools and statistical knowledge to recognize real-world problems

**PSO5:** To explain principles, tools and techniques of cartography, remote sensing, and geographic information systems.

**PSO6:** To become better planner, analytics, and better administrator in a competitive World and to increase their employability in Census, NIEPA, NCERT, Regional Planning, Town Planning, Smart City Planning section etc.

## **Geography (Honours) Details of CBCS**

### **Syllabus**

#### **SEMESTER – I**

#### **GEOG CC-101 Geomorphology**

##### **Course Outcomes:**

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

**CO1:** Understand the internal structure of the earth and functioning of the Earth systems in real time.

**CO2:** Analyze the factors affecting the development of landforms.

**CO3:** Distinguish between the mechanisms that control geomorphic processes.

**CO4:** Apply the knowledge about the roles of structure, stage and time in shaping the landforms in geographical research.

<b><u>GEOG CC101</u> : Geomorphology</b>		
<b>PWC (Theory :5 credits + Tutorial: 1credit)</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>

1	Geomorphology: Nature, Scope; Internal structure of the Earth, Isostasy- Concept of Airy and Pratt.	20
2.	Earth Movements: Continental Drift and Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes.	20
3	Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion by Davis and Penck, Rejuvenation of cycle of erosion.	15
4	Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal topography	20
	Tutorial	15
	<b>TOTAL</b>	90

### 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. Thornbury W. D., 1968: *Principles of Geomorphology*, Wiley.
6. Gautam, A. (2009), *Geomorphology*, Sharda Pustak Bhawan, Allahabad
7. Singh, S. (2000), *Physical Geography*, Pravalika Publications, Allahabad
8. Dayal, P (2015): *A Textbook of Geomorphology*, Rajesh Publications, New Delhi
9. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Publications, Meerut
10. Singh, S (2009): *Bhautik Bhugol ka Swaroop*, Prayag Pustak, Allahabad
11. Ahmad , E (1999) : *Geomorphology*, Kalyani Publication, Punjab.
12. Wooldridge and Moryan (1960): *An out line of Geomorphology*, Longmans Green and Co. London.
13. Bunnett , R,B (1973) *Physical Geography in Diagrams*, Longmans, London.
14. Strahler and strahler (2013): *Interoducing Physical Geography*, John Wiley & Sons Inc, United States
15. Monkhouse , F.J (2009) : *Principles of Physical Geography*, London Press, London.
16. Prasad, Gayatri ( 2009 ) : *Bhoo – Akriti Vigyan*, Sharda Pustak Bhawan, Allahabad

## SEMESTER – I

### **GEOG CC102: Cartographic Techniques (Practical) Course**

#### **Course Outcomes:**

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

- CO1:** Know about scope of cartography and explain science and art of cartography.
- CO2:** Prepare various types of scales map projections and explain their use.
- CO3:** Understand and perform interpretation of topographical maps with the help of cross profiles.
- CO4:** Apply the practical knowledge in research work in various social science fields.

<b><u>GEOG CC102</u> : Cartographic Techniques (Practical)</b>		
<b>PWC (Theory :4 credits + Practical: 2 credits )</b>		
<b>Units</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Cartography: Nature and Scope of Cartography, Classification	10
2	Scales – Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales	15
3	Map Projections: Concept, Classification and Properties, Graphical construction of Cylindrical Equal Area, Cylindrical Equidistant Projection, Mercator's Projection, Conical Projection with One and Two Standard Parallels, Polar Zenithal Stereographic Projection, and Bonne's projection.	20
4	Topographical Map – Interpretation with the help of Cross Profiles	15

	Practical work : A Project File in pencil, comprising one exercise <i>each</i> , on scale, map projection, interpretation of topographic sheet	30
	<b>TOTAL</b>	90

**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. 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. Mishra R.P. and Ramesh, A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
4. Monkhouse F. J. and Wilkinson H. R., 1973: *Maps and Diagrams*, Methuen, London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: *Cartography: Past, Present and Future*, Elsevier, International Cartographic Association.
6. Misra, R.P. (2014) *Fundamentals of Cartography*, Concept Publishing Company, New Delhi.
7. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
8. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
9. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
10. Singh R L & Rana P B Singh(1991) *Prayogtmak Bhugol ke Mool Tatva*, Kalyani Publishers, New Delhi
11. Sharma, J P (2010) *Prayogtmak Bhugol ki Rooprekha*, Rastogi Publications, Meerut
12. Singh, R L & Dutta, P K (2012) *Prayogtmak Bhugol*, Central Book Depot, Allahabad

## Generic Elective Papers (GE)

06 credits each

**Generic Elective (GE) Course:** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.

### **GEOG GE 101: Disaster Management**

#### **Course Outcomes:**

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

- CO1:** Understand the basic concepts of disaster management.
- CO2:** Examine the different types of disasters in India.
- CO3:** Evaluate the role of institutional frameworks to mitigate the disasters in the country.
- CO4:** Apply the knowledge as personals in disaster management department.

<b><u>GEOG GE101</u> : Disaster Management</b>		
<b>PWC (Theory :5 credits + Tutorial: 1 credit)</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Disasters: Definition, Concepts of Hazards and Disasters; Risk and Vulnerability; Classification of Disasters.	15
2.	Disasters in India: (a) Flood: Causes, Impact, Mapping of Flood prone areas; Landslide: Causes, Impact,	20



	Identification of landslide areas; Drought: Causes, Impact, and Mapping of Drought Prone areas.	
3	Disasters in India: (b) Earthquake and Tsunami: Causes, Impact and Mapping of Seismic Zones of India; Cyclone: Causes, Impact and Mapping of Cyclone Prone Areas. Manmade disasters: Causes and Impact. Pollution: Air, Water and Soil, Nuclear Disasters with case studies.	20
4	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
	Tutorial	15
	<b>TOTAL</b>	90

### 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. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

## **SEMESTER – II**

### **GEOG CC203 : Human Geography**

**PWC (Theory :5 credits + Tutorial: 1 credit)**

#### **Course Outcomes:**

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

**CO1:** Understand the scope of human geography in the contemporary world.

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

**CO3:** Understand the relationship between space and human resource.

**CO4:** Compare and contrast the population residing in different parts of the World.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Introduction: Meaning and Scope of Human Geography; Major Themes: Determinism, Possibilism and Neo- Determinism.	20
2.	Space and Society: Major Cultural Regions; Distribution and Characteristics of Human Races Negroid, Mongoloid and Australoid , Religion and Language.	15
3.	Population: Population Growth and Distribution; Demographic Transition Theory, Optimum Population, Population-Resource Region: Ackerman's concept of over Population, under Population	20
4	Settlements: Types and forms of Rural Settlements; Trends and Spatial Patterns of World Urbanization	20

	Tutorial	15
	<b>TOTAL</b>	90

### 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. Singh, Lekh Raj (2009): Fundamentals of Human Geography, *Sharda Pustak Bhawan*, Allahabad
6. Ahmad, A. (2010): Human Geography, *Omega Publications*, New Delhi
7. Maurya, S.D. (2015): Human Geography, *Pravalika Publications*, Allahabad
8. Kaushik, S.D. (2010) Manav Bhugol, Rastogi Publication, Meerut.
9. Maurya, S.D. (2012) Manav Bhugol, Sharda Pustak Bhawan. Allahabad.
10. Hussain, Majid (2012) Manav Bhugol. Rawat Publications, Jaipur.
11. Bansal , S.C (2004) Urban Geography, Meenakshi Publication , Varanasi
12. Hussain , Majid (2008) Human Geography, Gawat Publication, Jaipur.

### **SEMESTER – II**

#### **GEOG CC204 : Thematic Cartography (Practical)**

**PWC (Theory :4 credits + Practical: 2 credits )**

#### **Course Outcomes:**

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

**CO1:** Explain concepts and technicality of cartography

**CO2:** Construct diagrams to show statistical data and analyze the benefits and limitations of Diagrammatic Data Presentation.

**CO3:** Understand the concept of thematic maps and perform construction and interpretation of thematic maps.

**CO4:** Prepare thematic maps and interpret them.

<b>Units</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Maps – Classification, Types and significance of Maps.	10
2	Diagrammatic representation of Statistical diagram– Line Graph, Bar Diagram: Simple and Compound and Proportional Circles.	15
3	Thematic Maps – Concepts and Types Thematic Mapping Techniques – Properties, Uses and Limitations; Choropleth and Isopleths.	25
4	Construction and interpretation of Climograph and Hythergraph	10
	Practical work: A Thematic Atlas should be prepared on five specific themes of any state in India.	30
	<b>TOTAL</b>	<b>90</b>

### 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. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
5. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
6. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
7. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: *Thematic Cartography and Geovisualization* (3rd Edition), Prentice Hall.
8. Tyner J. A., 2010: *Principles of Map Design*, The Guilford Press.

9. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
10. Singh, L R & Singh R (1977): Manchitra or Prayogatmak Bhugol , Central Book, Depot, Allahabad
11. Singh R L and Dutta P K (2012) Prayogatamak Bhugol, Central Book Depot, Allahabad

## **SEMESTER – II**

### **GEOG GE 202 : Regional Planning and Development**

**PWC (Theory :5 credits + Tutorial: 1 credit )**

#### **Course Outcomes:**

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

**CO1:** Understand the concept of Region and Regional Planning.

**CO2:** Comprehend Theories and Models for Regional Planning.

**CO3:** Develop concept of Development, Sustainable Development and different programmes and policies.

**CO4:** Apply the knowledge in delineating planning area as administrator.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Definition and Concept of Region; Concept, Need and Types of Regional Planning	20
2.	Regionalisation: Characteristics of an Ideal Planning Region, Delineation of Planning Region, Planning regions of India  Regional disparities in India: Problems of Regional Planning, Future prospects.	20
3.	Models for Regional Planning/Development : Growth Pole Model of Perroux, Rostow's model, PURA by A.P.J. Abdul Kalam.	15

4	Regional Plans – Concepts, Tribal Area, Hill Area, Metropolitan Area Development. Indicators of Development- A Case Study of DVC.	20
	Tutorial	15
	<b>TOTAL</b>	90

### Reading List

1. Adell, Germán (1999) Literature Review: Theories and Models Of The Peri-Urban Interface: A Changing Conceptual Landscape, Peri-urban Research Project Team, Development Planning Unit, University College London at
2. Bhatt, L.S. (1976) Micro Level Planning in India. KB Publication, Delhi
3. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
4. Dreze J. and A. Sen, Indian Development: Select Regional Perspectives (Oxford: Oxford University Press, 1996).
5. Ses, Amratya (2000) Development as Freedom. Random House, Toronto
6. Raza, M., Ed. (1988). Regional Development. Contributions to Indian Geography. New Delhi, Heritage Publishers.
7. Rapley, John (2007) Understanding Development: Theory and Practice in the 3<sup>rd</sup> World. Lynne Rienner, London.
8. Schmidt-Kallert, Einhard (2005) A Short Introduction to Micro-Regional Planning, Food and Agriculture Organization of the United Nations (FAO) at
9. Sadyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
10. Chand, Mahesh & Puri, V.K. (2017): Regional Planning in India, *Allied Publishers Pvt. Limited*, New Delhi.
11. Chandna, R.C. (2016): Regional Planning and Development, *Kalyani Publishers*, Ludhiana.

## **EVS AECC 202 : Environmental Science**

### **Course Outcomes:**

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

**CO1:** Understand multidisciplinary nature of environmental studies.

**CO2:** Understand the concept and types of natural resources and environmental pollution.

**CO3:** Evaluate the anomalies created due to haphazard population growth and its impact on environment.

**CO4:** Understand about the organizations, conventions and legislations working on mitigation of environmental issues.

<b><u>EVS AEC202</u> : Environmental Science ( 2 Credits)</b>		
<b>PWC</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	<b>(a) Multidisciplinary Nature of Environmental Studies:</b> Definition, Scope and Importance. <b>(b) Concept of Ecosystem: - Components, Elementary Idea of Major Ecosystem:</b>	07
2	<b>(a) Natural Resources : Land, Water, Forest And Mineral Resources :</b> Introduction; Earth's Resources and Man; Renewable and Non-Renewable Resources ; Natural Resources and Associated Problems ; Non-Renewable Resources ; Renewable Resources ; Non-Renewable Energy; Renewable Energy, Conservation of Natural Resources <b>(b) Biodiversity and its conservation: Hotspots and threats to Biodiversity :</b> Biodiversity ; Definition ; Keystone Species ; Conservation of Biodiversity ; Methods For The Conservation of Wildlife ; Hot Spots ; Types of Biodiversity ; Genetic, Species and	10

	Ecosystem Diversity, Threats to Biodiversity ; Endangered And Endemic Species ; Conservation of Biodiversity: In Situ And Ex-Situ ; Wildlife Sanctuaries and National Parks of India ; The Need for An Integrated Protected Area System (IPAS) ;; Beej Bachao Andolan ; List of Biosphere Reserves in India ; Tiger Reserves in India.	
3	<p><b>Environmental Pollution:</b></p> <p><b>(a) Causes, Effects, and Control Measures:</b> Types and sources of Pollution.</p> <p><b>(i) Air Pollution ;</b> Sources of air pollution and its impact on human health.</p> <p><b>(ii) Water Pollution and contamination:</b> Introduction, Types and sources; Classification of Water Pollutants. Impact on human health</p> <p><b>(iii) Soil Pollution :</b> Introduction: Contaminants and Degradation; Impact on human health.</p> <p><b>(iv) Noise Pollution:</b> Effects of Noise Pollution on Physical Health; Permitted Noise Levels; Noise-Control Techniques. Impact on human health.</p> <p><b>(b) Public Awareness about</b> Greenhouse Effects; Acid Rain; Effects; Ozone Layer Depletion, Ganga Action Plan (GAP); Chipko Movement; Chernobyl disaster; Bhopal Gas Tragedy.</p> <p><b>(c) Environment and Human Health:</b> Outcome of Unhygienic Environmental Conditions</p>	05
4	<b>Human Population and Environment and Important Organizations:</b>	08



	<p><b>(a) Population Growth, Variation Among Nations :</b>  Global Population Growth ; Population Explosion – Family Welfare Program ; Urban Poverty and The Environment ; Environment and Human Health ; Environmental Health ; Examples of Linkages ; Definition of Health Impact Assessment (HIA) by WHO ; Climate and Health ; Infectious Diseases; Water borne and water related diseases, Mitigation Strategies to control adverse health impact, Role of Information Technology in Environment and Human Health.</p> <p><b>(b) Important Organizations :</b> IUCN ; WWF ; BNHS ; PETA; Important Dates and Years; Some Important Environmental Conventions ; Atmospheric conventions ; Biodiversity conventions ; Land conventions ; Hazardous wastes ; Some important Acts and Notifications in India ; Environment Action Programme – India (EAP) ; Environment Protection Act ; Penalties ; Air (Prevention and Control of Pollution) Act 1981 ; Penalties ; Water (Prevention and control of Pollution) Act ; Penalties ; Wildlife Protection Act ; Penalties ; Forest Conservation Act ; Penalties ; Issues involved in enforcement of environmental legislation.</p>	
<b>TOTAL</b>		<b>30</b>

**Reading List :**

1. Chandna R. C., 2002: *Environmental Geography*, Kalyani Publications, Ludhiana.
2. UNEP, 2007: *Global Environment Outlook: GEO4: Environment For Development*, United Nations Environment Programme

3. Odum, E. P. et al, 2005: *Fundamentals of Ecology*, Ceneage Learning India.
4. Singh S., 1997: *Environmental Geography*, Prayag Pustak Bhawan. Allahabad.
5. Baskar Sushmita and Baskar R. 2007 : *Environmental studies for Undergraduate Courses*, Unicorn Books, Bangalore

### SEMESTER – III

#### **GEOG CC 305: Climatology**

**PWC (Theory :5 credits + Tutorial: 1 credit )**

#### **Course Outcomes:**

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

- CO1:** Learn about the structure and composition of atmosphere.
- CO2:** Get in-depth knowledge of global atmospheric phenomena.
- CO3:** Analyze various forms of atmospheric moisture.
- CO4:** Understand the basic concept of frontogenesis and Dynamics of Cyclone.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Composition and Structure of Atmosphere, Insolation: Factors and Distribution, Heat Budget, Temperature Inversion	15
2.	Atmospheric Pressure and Winds – Atmospheric Pressure and Its Distribution , Forces affecting Winds, Planetary Winds, Periodic and Local Winds ,General Circulation, Jet Streams	25
3	Atmospheric Moisture – Evaporation, Condensation, Clouds, Forms of Precipitation and Types of Rainfall, Stability and Instability, Koppen's Classification of Climate .	25

4	Air Masses and Fronts – Concepts, Classification and Properties, Tropical and Temperate Cyclone	10
	Tutorial	15
	<b>TOTAL</b>	<b>90</b>

### Reading List

1. Barry R. G. and Carleton A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
3. Critchfield H. J., 1987: *General Climatology*, Prentice-Hall of India, New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
6. Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.
7. Lal, D.S. (2011): *Climatology*, *Sharda Pustak Bhawan*, Allahabad
8. Gupta L S(2000): *Jalvayu Vigyan*, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
9. Lal, D S (2006): *Jalvayu Vigyan*, Prayag Pustak Bhavan, Allahabad
10. Vatal, M (1986): *Bhautik Bhugol*, Central Book Depot, Allahabad
11. Singh, S (2009): *Jalvayu Vigyan*, Prayag Pustak Bhawan, Allahabad

## SEMESTER – III

### GEOG CC306 : **Statistical Methods in Geography (Practical)**

**PWC (Theory :4 credits + Practical: 2 credits )**

#### Course Outcomes:

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

**CO1:** Know the concept of various data/variables.

**CO2:** Apply the knowledge in their research work and analysis.

**CO3:** Understand various types of maps

**CO4:** Interpret the data in research projects and would help to get the position of analytics

<b>Units</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
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).	15
2	Tabulation and Descriptive Statistics: Frequencies (Deciles, Quartiles), Central Tendency (Mean, Median and Mode), Dispersion (Standard Deviation, Variance and Coefficient of Variation).	20
3	Sampling: Purposive, Random, Systematic and Stratified.	15
4	Theoretical Distribution: Probability and Normal Distribution.	10
	Practical work : : Each student will submit a record containing four exercises	30
	<b>TOTAL</b>	<b>90</b>

**Class Record:** Each student will submit a record containing four exercises:

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

## Reading List

1. Berry B. J. L. 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. Shinha, Indira (2007) *Sankhyiki bhugol*. Discovery Publishing House, New Delhi

## SEMESTER – III

### GEOG CC307 : **Geography of India**

**PWC (Theory :5 credits + Tutorial: 1 credit )**

### Course Outcomes:

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

**CO1:** Understand the physical attributes of Indian Geography.

**CO2:** Enhance their knowledge at par the economic and power resources of India.

**CO3:** Analyze the demographic attributes of India.

**CO4:** Learn in-depth, the specific regional divisions.

Unit	Topics to be covered	No. of hours
1	Physical: Physiographic Divisions, Drainage, Types of Soil and Vegetation, Mechanism of Monsoon	15

2	Economic: Mineral and power resources: Distribution and Utilization of iron ore, copper, coal, petroleum Agriculture: production and distribution of rice and wheat Industrial development : Iron and Steel Industry and I T industry	20
3	Population: Growth and distribution of Population, Population Problems and Policy 2000.	20
4	Balanced regional study of Upper, Middle, and Lower Ganga plain and Chotanagpur plateau, Major agricultural crops and agricultural regions of Bihar.	20
	Tutorial	15
	<b>TOTAL</b>	<b>90</b>

### Reading List

1. Deshpande C. D., 1992: *India: A Regional Interpretation*, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. *Geographical Dictionary of India*. Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: *Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective*.
4. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India
5. Sharma, T. C. 2003: *India - Economic and Commercial Geography*. Vikas Publ., New Delhi.
6. Singh R. L., 1971: *India: A Regional Geography*, National Geographical Society of India.
7. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
8. Khullar, D.R. (2014): *India A Comprehensive Geography*, Kalyani Publishers, Ludhiana
9. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publs., Jaipur & New Delhi.
10. Gautam, Alka (2012): *Advanced Geography of India*, Sharda Pustak Bhawan, Allahabad
11. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur

13. Husain, Majid (2015): Geography of India, *McGraw Hill Education (India) Private Limited*, New Delhi.

### **SEMESTER – III**

Skill Enhancement Courses (SEC): These courses may be chosen from a pool of courses designed to provide **value-based and/or skill-based knowledge**.

<b><u>IRS SEC301 : Inter-Religious Studies (Value Based) (02credits)</u></b>		
<b>PWC</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Nature and Need of Inter-Religious study, Scope of Comparative Religion.	05
2	Salient Features of Hinduism, Jainism and Buddhism, Salient Features of Christianity, Islam and Sikhism.	10
3	Similarities and Differences among Religions, Conflicting Truth claims of different religions and inter-religious Harmony.	10
4	Religious Tolerance, Secularism.	05
	<b>TOTAL</b>	<b>30</b>

### **Reading List**

1. Chaudhary, C. Neeraj (1979). "Hinduism", B.I. Publication, New Delhi.
2. Devraj, N.K., (1917)-"Hinduism and Christianity" Asian Publishing House.
3. Gordh, George, -"Christian Faith and its Cultural Exoperssion", Printed in USA.
4. Hick, John,- "Philosophy of Religion", Prentice Hall of India.

5. Hopfe, M.Lewis(1983)- "Religion of the World", Macmillan Publishing Co. Inc, New York
6. Masih,Y. (1990)- 'Comparitive study of Relgion',Motilal Banarasidass.
7. Sethi,S. Arijit, Pummer, Reinhard, (1979)-' Comparitive Religion', Vikas Publishing House pvt. ltd, Delhi.
8. Singh, B.N.,(1994)-' Vishwa Dharma Darshan ki Samasyain', Ratna Printing Works.
9. Tiwari, Nath Kedar,(1983)-"Comparative Religion", Motilal Banarasidass.
10. Ward, CHS (1998) – 'Early Buddhism", Caxton Publication, Delhi.

**GEOG GE303 : Climate Change: Vulnerability and Adaptation**

**PWC (Theory :5 credits + Tutorial: 1 credit)**

**Course Outcomes:**

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

**CO1:** Understand fundamentals of climate change.

**CO2:** Analyse of vulnerability and its impact.

**CO3:** Know the impact of climate change on flora, fauna, and human health.

**CO4:** Understand the concept of mitigation and planning.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
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	15
4	Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia. National Action Plan on Climate Change; Role of local Institutions in mitigation strategies.	20
	Tutorial	15
	<b>TOTAL</b>	90

### Further Readings

1. IPCC. (2007) *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.*
2. IPCC (2014) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
3. IPCC (2014) *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
4. Palutikof, J. P., van der Linden, P. J. and Hanson, C. E. (eds.), Cambridge University Press, Cambridge, UK.
5. OECD. (2008) *Climate Change Mitigation: What Do we Do? Organisation and Economic Co-operation and Development.*
6. UNEP. (2007) *Global Environment Outlook: GEO4: Environment for Development*, United Nations Environment Programme.
7. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) *Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies*, Springer

8. Sen Roy, S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH Pub., New Delhi.

## **SEMESTER – IV**

### **GEOG CC408 : Economic Geography**

**PWC (Theory: 5 credits + Tutorial: 1 credit )**

#### **Course Outcomes:**

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

**CO1:** Understand the concept and factors responsible for spatial distribution of economic activities in the world.

**CO2:** Learn various dimensions of primary and secondary activities.

**CO3:** Be able to explain the relevance of Transportation and SEZ in Indian economy.

**CO4:** Apply the knowledge in the context of current economic problems of the World.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Introduction: Concept and Classification of Economic Activities, Locational Theories of Agriculture (Von Thunen), and Industry (Weber)	15
2	Primary Activities: Intensive Subsistence and Commercial Grain Farming, Plantation farming.	20
3	Secondary Activities: Major Industries- Iron and Steel, Cotton Textile and Sugar Industries,	20
4	Tertiary Activities: Transport: Means of transport with special reference to road and rail transport in India, Trade: International trade with reference to WTO, Special Economic Zones.	20
	Tutorial	15

TOTAL	90
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### 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. Siddhartha, K. (2014): *Economic Geography*, Kislaya Publications Pvt. Limited, New Delhi
10. Saxena, H.M. (2013): *Economic Geography*, Rawat Publications, Jaipur
11. Chatterjee, Kanan (2015): *Basics of Economic Geography*, Concept Publishing Company, New Delhi

### SEMESTER – IV

#### GEOG CC409 : Environmental Geography

**PWC (Theory :5 credits + Tutorial: 1 credit )**

#### Course Outcomes:

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

**CO1:** Know the concept and components of Environmental Geography, ecosystem and ecology.

**CO2:** Understand human-environment relationships.

**CO3:** Analyse environmental problems, their causes and impact.

**CO4:** Learn Environmental Programmes and Policies at global and national levels.

Unit	Topics to be covered	No. of hours
1	Environmental Geography –Definition and Scope, Components of Environment  Ecology and Ecosystem - Concept, Components and Functions  Types of Ecosystem	20
2.	Human-Environment Relationships – Adaptation in different Biomes : Mountain environment, Monsoon lands, Equatorial regions, Temperate grasslands.	20
3.	Environmental Problems: Air and Water Pollution -Their Causes, Impacts and Management.	15
4	Environmental Programmes and Policies: Global and National levels: (Earth Summit, Environmental Policy of India (2006), Chipko Movement)	20
	Tutorial	15
	TOTAL	90

### Reading List

1. Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: *Principals of Environmental Science: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
3. Siddhartha, K. (2013): *Ecology and Environment*, *Kislaya Publications Pvt. Limited*, New Delhi
4. Mal, Suraj., and Singh, R.B. (Eds.) (2009) *Biogeography and Biodiversity*. Rawat Publication, Jaipur
5. Sharma, P.D. (2004): *Ecology and Environment*, Rastogi Publications, Meerut
6. Odum, E. P. et al, 2005: *Fundamentals of Ecology*, Ceneage Learning 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. Singh S., 1997: *Environmental Geography*, Prayag Pustak Bhawan. Allahabad.
9. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. *Advances in Geographical and Environmental Studies*, Springer
10. Singh, Savindra 2001. *Paryavaran Bhugol*, Prayag Pustak Bhawan, Allahabad. (in Hindi)
11. Singh, R.B. (1998) *Ecological Techniques and Approaches to Vulnerable Environment*, New Delhi, Oxford & IBH Pub..
12. UNEP, 2007: *Global Environment Outlook: GEO4: Environment For Development*, United Nations Environment Programme.
13. Bharucha, Erach (2015): *Textbook of Environmental Studies for Undergraduate Course*, *University Press (India) Private Limited*, Hyderabad.

## **GEOG CC410 : Remote Sensing and GIS (Practical)**

**PWC (Theory: 4 credits + Practical: 2 credits)**

### **Course Outcomes:**

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

- CO1:** Learn basic concept, components and types of remote sensing and GIS
- CO2:** Comprehend about aerial photography, satellite remote sensing, EMR and sensors.
- CO3:** Understand application of remote sensing and GIS in various fields.
- CO4:** Identify the earth surface features from satellite images and prepare thematic maps.

Units	Topics to be covered	No. of hours
1	Remote Sensing and GIS: Definition, Basic Concept and significance of Remote Sensing in geographical studies, Components, Development, Platforms and Types.	15
2	Types, Interpretation and Utility of Aerial Photographs, Chief Elements of Aerial Photo Interpretation- Size, Shape, Tone, Texture, Pattern and Location Association.	15
3	Remote Sensing Platform, EMR Interaction with Atmosphere and Earth Surface.	15
4	Application of Remote Sensing and GIS: Concept of Geographical Information System (GIS), Raster and Vector Data Structure, Satellites- Landsat and IRS	15
	Practical work : : A project file consisting of two exercises will be done from aerial photos and satellite images (scale, orientation and interpretation).	30
	<b>TOTAL</b>	<b>90</b>

- **Practical Record:** A project file consisting of two exercises will be done from aerial photos and satellite images (scale, orientation, and 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. Siddiqui, Masood Ahsan (2006): *Introduction to Geographical Information System*, Sharda Pustak Bhawan, Allahabad
5. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
6. Siddiqui, Masood Ahsan (2011): *Concepts and Techniques of Geoinformatics*, Sharda Pustak Bhawan, Allahabad

7. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
8. Sarkar, A. (2015) *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
9. Chauniyal, D.D. (2010) *Sudur Samvedan evam Bhogolik Suchana Pranali*, Sharda Pustak Bhawan, Allahabad .

## **SEMESTER – IV**

### **GEOG SEC 402 : Geographical Information System (Practical)**

#### **Course Outcomes:**

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

**CO1:** Learn basic concepts of GIS and GPS.

**CO2:** Understand the data structure and process spatial and attribute data

and prepare thematic maps.

**CO3:** Comprehend GIS data analysis methods.

**CO4:** Use GIS for urban and land use land cover study.

<b>GEOG SEC402 : Geographical Information System (Practical)</b>		
<b>PWC</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Geographical Information System (GIS): Definition and Components. Global Positioning System (GPS) – Principles and Uses.	5
2	GIS Data Structures: Types (Spatial and Non-Spatial), Raster and Vector Data Structure	5
3	GIS Data Analysis: Input; Geo-Referencing; Editing, Output and Query; Overlays.	5
4	Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring.	5

	<b>Practical Record</b> : A Project File Consisting of 5 Exercises on Using any GIS Software on above mentioned Themes.	10
	<b>TOTAL</b>	<b>30</b>

### Reading List

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

### **GEOG GE404 : Geography of India**

**PWC (Theory :5 credits +Tutorial: 1 credit)**

#### **Course Outcomes:**

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

**CO1:** Understand the physical attributes of India

**CO2:** Get detail knowledge about economic and power resources of India.



**CO3:** To analyze the demographic attributes of India.

**CO4:** Learn in-depth, the specific regional divisions.

Unit	Topics to be covered	No. of hours
1	Physical: Physiographic Divisions, Drainage, Types of Soil and Vegetation, Mechanism of Monsoon	15
2.	Economic: Mineral and power resources: Distribution and Utilization of iron ore, copper, coal, petroleum Agriculture: production and distribution of rice and wheat Industrial development: Iron and Steel Industry and I T industry	20
3	Population and Social Geography: Growth and distribution of Population, Population Problems and Policy 2000.	20
4	Balanced regional study of Upper, Middle, and Lower Ganga plain and Chotanagpur plateau, Major agricultural crops and agricultural regions of Bihar.	20
	Tutorial	15
	<b>TOTAL</b>	<b>90</b>

### Reading List

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

7. Singh, Jagdish 2003: *India - A Comprehensive & Systematic Geography*, Gyanodaya Prakashan, Gorakhpur.
8. Khullar, D.R. (2014): *India A Comprehensive Geography*, Kalyani Publishers, Ludhiana
9. Tirtha, Ranjit 2002: *Geography of India*, Rawat Publs., Jaipur & New Delhi.
10. Pathak, C. R. 2003: *Spatial Structure and Processes of Development in India*. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) *Geography of India*. Prayag Pustak Bhawan, Allahabad
12. Sharma, T.C. (2013) *Economic Geography of India*. Rawat Publication, Jaipur

## **SEMESTER – V**

### **GEOG CC511 : Regional Planning and Development**

**PWC (Theory :5 credits + Tutorial: 1 credit )**

#### **Course Outcomes:**

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

**CO1:** To understand the concept of Region and Regional Planning.

**CO2:** To familiarize the students with Theories and Models for Regional Planning.

**CO3:** To develop understanding about concept of Development, Sustainable Development and different programmes and policies.

**CO4:** Apply the planning and development processes in useful geographical studies

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Definition and Concept of Region. Concept, Need and Types of Regional Planning	15
2.	Regionalisation: Characteristics of an Ideal Planning Region, Delineation of Planning Region, Regionalisation of India for Planning (Agro- Ecological Zones)	25

	Regional disparity in India: Problems of Regional Planning, Prospects.	
3.	Models for Regional Planning/ Development: Growth Pole Model of Perroux, Rostow's model, PURA by A.P.J. Abdul Kalam.	15
4	Concept of Development, Tribal Area, Hill Area and Metropolitan Area Development.	20
	Tutorial	15
	TOTAL	90

### Reading List

1. Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
2. Claval P.I, 1998: *An Introduction to Regional Geography*, Blackwell Publishers, 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. Chand, Mahesh & Puri V.K. (2017): *Regional Planning in India*, *Allied Publishers Pvt. Limited*, New Delhi.
9. UNDP 2001-04: *Human Development Report*, Oxford University Press, New Delhi.
10. World Bank 2001-05: *World Development Report*, Oxford University Press, New Delhi.
11. Chandana, R.C. (2016): *Regional Planning and Development*, *Kalyani Publishers*, Ludhiana.

## **SEMESTER – V**

### **GEOG CC512 : Research Methodology &Field Study Tour**

**PWC (Practical) (Theory: 4 credits + Practical: 2 credits)**

#### **Course Outcomes:**

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

**CO1:**To understand various dimensions of field work and its role in geographical studies.

**CO2:** To Comprehend different field study techniques.

**CO3:** To apply the knowledge in report writing

**CO4:** To identify different field tools.

<b>Units</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	a. Field Work in Geographical Studies – Basic Principles and Ethics of Field- Work. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental. b. Structure of a Research Report: Preliminaries; Text; References, Bibliography and Citations; Abstract	15
2	Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant)	15
3	Questionnaires: Open / Closed / Structured / Non-Structured; Interview, Schedules with Special Focus on Target Group Discussions;	15
4	Designing the Study Tour Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.	15
	Practical Work : Each student will prepare an individual report based on primary and secondary data collected during field trip.	30

TOTAL	90
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### Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during field trip.
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 A 4 size paper should be submitted in soft binding.

### 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. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
7. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt
8. Agarwal, Chetan & Sharma, Vijay (2012): *Research Methodology in Geography*, *Commonwealth Publishers Pvt. Ltd.*, New Delhi
9. Thakur, Devendra (2009): *Research Methodology in Social Sciences*, *Deep & Deep Publications*, New Delhi

## **GEOG DSE501 : Population Geography**

**PWC (Theory :5 credits + Tutorial: 1 credit)**

### **Course Outcomes:**

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

**CO1:** To understand Population Geography along with relevance of demographic data.

**CO2:** To learn about distribution of data and trends of population growth in developed and less developed countries, along with population theories.

**CO3:** To identify the variations of population composition of different parts of the World.

**CO4:** To interpret the contemporary issues in the field of population.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Defining the Field – Nature and Scope; Sources of Data with special reference to India (Census, Vital Statistics and NSSO).	15
2	Population Size, Distribution and Growth – Determinants and Patterns. Theories of Growth – Malthusian Theory and Demographic Transition Theory, Optimum Population Theory.	20
3	Population Dynamics: Fertility, Mortality and Migration – Measures, Determinants.	15
4	Population Composition and Characteristics – Age-Sex Composition; Rural and Urban Composition; Literacy. Contemporary Issues – Ageing of Population; Declining Sex Ratio.	25

	Tutorial	15
	<b>TOTAL</b>	90

### 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*, 3<sup>rd</sup> 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. Chandna, R.C. (2014): Geography of Population, *Kalyani Publishers*, Ludhiana
9. Chandna, R C (2006), Jansankhya Bhugol, Kalyani Publishers, Delhi
10. Panda B P (1988): Janasankya Bhugol, M P Hindi Granth Academy, Bhopal
11. Maurya S D (2009) Jansankya Bhugol, Sharda Putak Bhawan, Allahabad

## **GEOG DSE 502 : Urban Geography**

**PWC (Theory: 5 credits + Tutorial: 1 credit)**

### **Course Outcomes:**

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

**CO1:** Understand the fundamentals and patterns of urbanization process in the world.

**CO2:** Comprehend the patterns and functional attributes of urban places.

**CO3:** Analyze the contemporary urban issues and its solution for sustainable development

**CO4:** Learn about contemporary urban issues Delhi, Patna, and Ranchi.

Unit	Topics to be covered	No. of hours
1	Urban geography: Introduction, nature and scope, Patterns of Urbanisation in developed and developing countries	20
2.	Site and Situations, Location and Functional classification of towns.	20
3	Urban Issues: Problems of housing, slums, civic amenities, transport and pollution.	20
4	Case studies of Delhi, Patna and Ranchi with reference to Land use and Urban Issues	15
	Tutorial	15
	<b>TOTAL</b>	90

### Reading List

1. Fyfe N. R. and Kenny J. T., 2005: *The Urban Geography Reader*, Routledge.
2. Graham S. and Marvin S., 2001: *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, Routledge.
3. Hall T., 2006: *Urban Geography*, Taylor and Francis.
4. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: *Urban Geography*, John Wiley.
5. Knox P. L. and McCarthy L., 2005: *Urbanization: An Introduction to Urban Geography*, Pearson Prentice Hall New York.
6. Pacione M., 2009: *Urban Geography: A Global Perspective*, Taylor and Francis.
7. Mandal, R.B. (1999): *Urban Geography A Text Book*, Concept Publishing Company, New Delhi
8. Bansal, S.C. (2010): *Urban Geography*, Meenakshi Prakashan, Meerut
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, risk, and resilience in Asian megacities*. *Advances in Geographical and Environmental Studies*, Springer.



13. Sr. M. Rashmi, Sarkar Ghose D. and Chowdhury A. (Ed.) (2017), Development and Management of Urban Infrastructure in India, Rajesh Publications, New Delhi.

## **SEMESTER – VI**

### **GEOG CC613 : Evolution of Geographical Thought**

**PWC (Theory : 5 credits + Tutorial: 1 credit )**

#### **Course Outcomes:**

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

- CO1:** Understand the historical evolution of geographical thought and its interdisciplinary approach.
- CO2:** Learn different paradigms in geographical studies.
- CO3:** Evaluate the nature of dualism in geography.
- CO4:** Comprehend the relevance of contemporary trends in geographical studies.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Meaning and Definition of Geography, Relation of Geography with other Science.  Contribution of Ancient, Greek, Roman and Arab Geographers.  Contributions of Humboldt, Ritter and Ratzel.	20
2	Evolution of Geographical Thinking and Disciplinary Trends in Britain, United States of America and India.	20
3	Dualism in Geography - Determinism vs Possibilism, Neo-determinism, Systematic vs Regional Geography.	15

4	Trends – Quantitative Revolution and its Impact, Behaviouralism, Radicalism, Feminism; Post Modernism and Paradigm shift in Geography.	20
	Tutorial	15
	TOTAL	90

### Reading List

1. Arentsen M., Stam R. and Thuijjs R., 2000: *Post-modern Approaches to Space*, ebook.
2. Bhat, L.S. (2009) *Geography in India (Selected Themes)*. Pearson
3. Bonnett A., 2008: *What is Geography?* Sage Publications.
4. Dikshit R. D., 1997: *Geographical Thought: A Contextual History of Ideas*, Prentice–Hall India.
5. Hartshone R., 1959: *Perspectives of Nature of Geography*, Rand MacNally and Co.
6. Holt-Jensen A., 2011: *Geography: History and Its Concepts: A Students Guide*, SAGE.
7. Johnston R. J., (Ed.): *Dictionary of Human Geography*, Routledge.
8. Johnston R. J., 1997: *Geography and Geographers, Anglo-American Human Geography since 1945*, Arnold, London.
9. Kapur A., 2001: *Indian Geography Voice of Concern*, Concept Publications.
10. Martin Geoffrey J., 2005: *All Possible Worlds: A History of Geographical Ideas*, Oxford.
11. Soja, Edward 1989. *Post-modern Geographies*, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.
12. Adhikari, Sudeepta (2015): *Fundamentals of Geographical Thought*, *Orient BlackSwan Private Limited*, Hyderabad
13. Maurya, S.D. (2013): *History of Geographical Thought*, *Sharda Pustak Bhawan*, Allahabad

**SEMESTER – VI**

**GEOG CC614 : Disaster Management based Project Work**

**(Practical)**

**PWC (Theory :4 credits + Practical: 2 credits )**

**Course Outcomes:**

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

**CO1:** Understand the basic concepts of disaster management.

**CO2:** Analyse about the different types of disasters in India.

**CO3:** Understand the various dimensions of disaster management through field works.

**CO4:** Apply the knowledge in real life situations

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	The Project Report based on any two field-based case studies among following disasters and one disaster preparedness plan of respective college or locality:	30
2.	1. Flood 2. Drought 3. Cyclone and Hailstorms 4. Earthquake 5. Landslides 6. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents	60
	TOTAL	90

## 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 Oppurtunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India ([www.ikbooks.com](http://www.ikbooks.com)).
9. Singh, Savindra (2014): Disaster Management, *Pravalika Publications*, Allahabad.

## **GEOG DSE603 : Social Geography**

**PWC (Theory :5 credits + Tutorial: 1 credit)**

### **Course Outcomes:**

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

**CO1:** Comprehend different Social Categories and their Distribution

**CO2:** Develop knowledge on Migration and its consequences.

**CO3:** Evaluate the social issues such Poverty, Slums, Dowry, and child labour.

**CO4:** Understand components and concepts of social well-being and quality of life.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Social Geography: Concept, Origin, Nature and Scope. Social Categories: Linguistic and Ethnic Tribes and their Spatial distribution- Bushman, Eskimo, Orao and Santhal.	20
2.	Migration: Definition, types, causes and consequences	20
3	Geographies of Welfare and Well being: Concept and Components – Healthcare, Housing and Education.	15
4	Social Problems in India: Poverty, Slums, Law and Order, Dowry, and Child Labour.	20
	Tutorial	15
	<b>TOTAL</b>	90

### **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. 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.
12. Sen, Jyotirmoy (2016): *A Textbook of Social and Cultural Geography*, *Kalyani Publishers*, Ludhiana.
13. Sr. M. Rashmi, Sarkar Ghose D. and Chowdhury A. (ed), (2013), *Urban Poverty: Issues and Challenges*, Rajesh Publications, New Delhi.
14. Sarkar Ghose D. (2019), 'Urban Poverty and Deprivation,' Rajesh Publications, New Delhi.
15. Sarkar Ghose & Chowdhury(2011), 'Quality of Life of Working Women of Patna, Novelty Publication, Patna.

## **SEMESTER – VI**

<b><u>GEOG DSE604 : Dissertation ( 6 Credits)</u></b>		
<b>PWC</b>		
<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	<p><b>Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6<sup>th</sup> Semester.</b></p> <p><b>Dissertation/Project:</b> An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.</p>	

	<b>Project work/Dissertation</b> is considered as a special course involving application of knowledge involving / analyzing /exploring a real life situation / difficult problem. A Project/Dissertation work would be of 6 credits. A Project/Dissertation work may be given in lieu of a discipline specific elective paper	
	<b>TOTAL</b>	90
	CIA – 30 - Presentation 70 – 40 Dissertation Report , 30 Viva-voce	

**GEOG DSE604 : Geography of Health and Wellbeing**

**PWC (Theory :5 credits + Tutorial: 1 credit)**

**Course Outcomes:**

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

- CO1:** Understand concepts of Health Geography and Environment.
- CO2:** Identify health risks and exposure.
- CO3:** Comprehend the impact of climate Change and human health.
- CO4:** Apply knowledge of Geography of Social Well-being and Social Diversity in modern society.

<b>Unit</b>	<b>Topics to be covered</b>	<b>No. of hours</b>
1	Perspectives on Health and wellbeing: Definition; development and health: driving forces in health and environmental trends- population dynamics urbanization, poverty and inequities.	20
2.	Pressure on Environmental Quality and Health: Human activities and environmental pressure on land use and agricultural development; Industrialisation; transport and energy	20

3	Pollution and Health Risks: Air and Water pollution; household wastes; water; housing, workplace.  Health and Disease Pattern in Environmental Context with special reference to India, Types of Diseases and their regional pattern .	15
4	Climate Change and Human Health: Changes in climate system – heat and cold; Biological disease agents.	20
	Tutorial	15
	<b>TOTAL</b>	90

### 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 Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
5. 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.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
11. Misra, R.P. (2007): Geography of Health :A Treatise on Geography of Life and Death in India, *Concept Publishing Company*, New Delhi
12. Sinha, Satish Chandra (2012): Medical Geography, *Rajat Publications*, New Delhi.