Choice Based Credit SystemB.A./B.Sc.
(Honours) Geography Syllabus

	CORE COURSE (14)	Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (2)	Elective: Discipline Specific DSE (4)	Elective: Generic (GE) (4) (Optional)
I	Geomorphology–GEOGH101CC Cartographic Techniques (Practical) -GEOGH102CC	(English/ Hindi/ MIL Communication)/ Environmental			GE-1
II	Human Geography-GEGH201CC Thematic Cartography (Practical)-GEOGH202CC	(English/ MIL Communication)/ Environmental			GE-2
III	Climatology-GEOGH301CC Statistical Methods in Geography (Practical) -GEOGH302CC Geography of India-GEOGH303CC		Remote Sensing (Practical) GEOGH304SEC Or Advanced Spatial Statistical Techniques - GEOGH305SEC		GE-3
IV	Economic Geography GEOGH401CC Environmental GEOGH402CC Geography Field Work and Research GEOGH403CC Methodology (Practical)		Geographical Information System (Practical) GEOGH404SEC Or Research Methods (Practical) GEOGH405SEC		GE-4
V	Regional Planning and Development GEOGH501CC Remote Sensing and GIS (Practical) GEOGH502CC			Population Geography GEOGH503EDS1 or Resource Geography GEOGH504EDS2 Urban Geography GEOGH505EDS2 or Agricultural Geography GEOGH5065EDS2	
VI	Evolution of GEOGH601CC Geographical Thought Disaster Management based Project Work (Practical) GEOGH602CC			Geography of Health and Wellbeing GEOGH603EDS3 Or Political Geography GEOGH604EDS3 Hydrology and Oceanography - GEOGH605EDS4	

				Social Geography - GEOGH606EDS4	

Each course will be of 100 Marks, and the distribution of the Marks will be as follow.

a) In all such courses where there are practical courses as essential component the distribution of the marks under different components will be as following.
   i) Theory 50 Marks
   ii) Practical 30 Marks
   iii) CCA/IA 20 Marks

All the Practical papers shall be conducted and set by the College at their own level.

b) In all such courses where there are no practical courses the distribution of the marks under different components will be as following.
   i) Theory 70 Marks
   ii) CCA/IA 30 Marks

Continuous Comprehensive Assessment (CCA) Pattern: Maximum Marks Allotted: 30

Mid Term Test* (Marks)	Class Test/ Tutorials/Assignments (Marks)	Quiz/Seminars (Marks)	Attendance (Marks)	Total Marks
15	5	5	5	
Total 15	**5**	**5**	**5**	**30**

***** The pattern of examination for conducting the minor test will be same as prescribed for the end semester examination.

End Semester Examination System: Maximum Marks Allotted: 70

Maximum Marks Allotted	Minimum Pass Marks	Time Allotted
70	**32**	**3.00 Hrs**

Paper Setting Scheme

Section	No of Questions	Syllabus Coverage	Nature of Questions and Answers	Questions to be Attempted	Maximum Marks
A	10	Complete	Objective Type	10(1 mark each)	10
	5	Complete	Short answer type (25-50 words)	5 (4 marks each)	20
B	2	Complete	Long answer type	1(10 marks each)	10
C	2	Complete	Long answer type	1(10 marks each)	10
D	2	Complete	Long answer type	1(10 marks each)	10
E	2	Complete	Long answer type	1(10 marks each)	10
				Total	**70**

Note: Use of non-programmable calculators and map stencils are allowed in the examination hall.

Each course will be of 100 Marks, and the distribution of the Marks will be as following.

c) In all such courses where there are practical courses as essential component the distribution of the marks under different components will be as following.

iv) Theory 50 Marks
v) Practical 20 Marks (Practical File-10, Viva-voce-10)
vi) CCA/IA 30 Marks**

All the Practical papers shall be conducted and set by the College at their own level.

d) In all such courses where there are no practical courses the distribution of the marks under different components will be as following.

iii) Theory 70 Marks
iv) CCA/IA 30 Marks**

****Continuous Comprehensive Assessment (CCA) Pattern: Maximum Marks Allotted: 30**

Mid Term Test* (Marks)	**Class Test/ Tutorials/Assignments (Marks)**	**Quiz/Seminars (Marks)**	**Attendance (Marks)**	**Total Marks**
15	5	5	5	
Total 15	**5**	**5**	**5**	**30**

***** The pattern of examination for conducting the minor test will be same as prescribed for the end semester examination.

End Semester Examination System: Maximum Marks Allotted: 70

Maximum Marks Allotted	**Minimum Pass Marks**	**Time Allotted**
70	**32**	**3.00 Hrs**

Paper Setting Scheme

Section	**No of Questions**	**Syllabus Coverage**	**Nature of Questions and Answers**	**Questions to be Attempted**	**Maximum Marks**
A	10	Complete	Objective Type	10(1 mark each)	10
	5	Complete	Short answer type (25-50 words)	5 (4 marks each)	20
B	2	Complete	Long answer type	1(10 marks each)	10
C	2	Complete	Long answer type	1(10 marks each)	10
D	2	Complete	Long answer type	1(10 marks each)	10
E	2	Complete	Long answer type	1(10 marks each)	10
				Total	**70**

Note: Use of non-programmable calculators and map stencils are allowed in the examination hall.

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

Note:

1. **Practical paper will not have tutorials.**

Core Courses (CC)

Semester I

1. Geomorphology – GEOGH101CC
2. Cartographic Techniques (Practical) – GEOGH102CC

Semester II

3. Human Geography – GEOGH201CC
4. Thematic Cartography (Practical) – GEOGH202CC

Semester III

5. Climatology– GEOGH301CC
6. Statistical Methods in Geography (Practical) – GEOGH302CC
7. Geography of India– GEOGH303CC

Semester IV

8. Economic Geography– GEOGH401CC
9. Environmental Geography – GEOGH402CC
10. Field Work and Research Methodology (Practical) – GEOGH403CC

Semester V

11. Regional Planning and Development– GEOGH501CC
12. Remote Sensing and GIS (Practical) – GEOGH502CC

Semester VI

13. Evolution of Geographical Thought– GEOGH601CC
14. Disaster Management based Project Work (Practical) – GEOGH602CC

Skill Enhancement Course (any 2) (SEC)

Semester III (Any one)

1. Remote Sensing (Practical) – GEOGH304SEC
2. Advanced Spatial Statistical Techniques (Practical) – GEOGH305SEC

Semester IV (Any one)

3. Geographical Information System (Practical) – GEOGH404SEC
4. Research Methods (Practical) – GEOGH405SEC

Elective Discipline Specific (any four) (EDS)

Semester V

DSE-1 (Any one)

1. Population Geography– GEOGH503EDS1
2. Resource Geography– GEOGH504EDS1

DSE-2 (Any one)

3. Urban Geography– GEOGH505EDS2
4. Agricultural Geography– GEOGH506EDS2

Semester VI

DSE-3 (Any one)

5. Geography of Health and Wellbeing– GEOGH603EDS3
6. Political Geography– GEOGH604EDS3

DSE-4 (Any one)

7. Hydrology and Oceanography– GEOGH605EDS4
8. Social Geography– GEOGH606EDS4

Elective Generic Papers (any four) (EG)

Semester I (Any one)

1. Disaster Management– GEOGH103EG
2. Geography of Tourism– GEOGH104EG

Semester II (Any one)

3. Spatial Information Technology– GEOGH203EG
4. Regional Development– GEOGH204EG

Semester III (Any one)

5. Climate Change: Vulnerability and Adaptation– GEOGH306EG
6. Rural Development– GEOGH307EG

Semester IV (Any one)

7. Industrial Geography– GEOGH406GE
8. Sustainable Development– GEOGH407GE

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

Core Papers

1. Geomorphology- GEOGH101CC

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Geomorphology: Definition, Nature and Scope. Interior Structure of the Earth Theory of Isostasy: Aiary and Pretts's Views	11	6	0
II.	**Earth Movements** Continental Drift, Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes.	10	5	0
III.	**Geomorphic Processes:** Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck).	10	5	0
IV.	**Evolution of Landforms (Erosional and Depositional):** Fluvial, Karst, Aeolian, Glacial,	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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. Richards K. S., 1982: *Rivers: Form and Processes in Alluvial Channels*, Methuen, London.
7. Selby, M.J., (2005), *Earth's Changing Surface*, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), *The Dynamic Earth: An Introduction to physical Geology*, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: *Principles of Geomorphology*, Wiley.
10. Gautam, A (2010): *Bhautik Bhugol*, Rastogi Punlications, Meerut
11. Tikkaa, R N (1989): *Bhautik Bhugol ka Swaroop*, Kedarnath Ram Nath, Meerut
12. Singh, S (2009):*Bhautik Bhugol ka Swaroop*, Prayag Pustak,Allahabad

2. Cartographic Techniques (Practical) – GEOGH102CC

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Cartography – Nature and Scope. History of Cartography	11	0	6
II.	**Scales** Concept and application Graphical Construction of Plain, Comparative and Diagonal Scales.	10	0	5
III.	**Map Projections** Graphical Construction of Polar Zenithal Stereographic, Bonne's and Mercator's Projections, and Universal Transverse Mercator (UTM) Projection properties and uses	10	0	5
IV.	**Topographical Map** Interpretation of a Mountain area with the help of Cross and Longitudinal Profiles. Slope Analysis – Wentworth's method	9	0	4
	Total Hours	**40**	0	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

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: BasicCartographic 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. Robinson A. H., 2009: *Elements of Cartography*, John Wiley and Sons, New York.
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) PrayogatmakBhugol, Central Book Depot, Allahabad

3. Human Geography– GEOGH201CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I	**Introduction** Definition, Nature, Major Subfields, Contemporary Relevance of Human Geography	11	4	0
II	**Space and Society** Cultural Regions of the world Human Races: Classification(Griffith Taylor) and world distribution Major Religions of the world and distribution Major languages of the world and distribution	11	4	0
III	**Population** World Population Distribution, density and growth, Demographic Transition Theory.	11	4	0
IV	**Settlements** Types and Patterns of Rural Settlements Classification of Urban settlements Trends and Patterns of World Urbanization	11	4	0
	Total Hours	**44**	**16**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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

4. Thematic Cartography (Practical) – GEOGH202CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Maps – Classification and Types Principles of Map Design.	11	0	6
II.	**Diagrammatic Data Presentation** Line, Bar and Circle.	10	0	5
III.	**Thematic Mapping Techniques** Properties, Uses and Limitations: Area Data -- Choropleth, Dot, Proportional Circles, Isopleth.	10	0	5
IV.	**Cartographic Overlays** Point, Line and Area Data. Thematic Maps – Preparation and Interpretation.	9	0	4
	Total Hours	**40**	0	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

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

Reading List

1. Cuff J. D. 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.
5. Mishra R. P. and Ramesh A., 1989: *Fundamentals of Cartography*, Concept, New Delhi.
6. Sharma J. P., 2010: *Prayogic Bhugol*, Rastogi Publishers, Meerut.
7. Singh R. L. and Singh R. P. B., 1999: *Elements of Practical Geography*, Kalyani Publishers.
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 Pryaogatamek Bhugol , Central Book, Depot, Allahabad
12. Bhopal Singh R L and Duttta P K (2012) Prayogatama Bhugol, Central Book Depot, Allahabad

5. Climatology– GEOGH301CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	T	P
I.	**Introduction** Atmospheric Composition and Structure – Variation with Altitude, Latitude and Season. Insolation and Temperature – Factors and Distribution, Heat Budget, Temperature Inversion.	11	6	0
II.	**Atmospheric Pressure and Winds** Planetary Winds, Forces affecting Winds, General Circulation, Jet Streams, Monsoon - Origin and Mechanism, Local winds.	10	5	0
III.	**Atmospheric Moisture** Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation-Types, Climatic Classification (Koppen)	10	5	0
IV.	**Airmass and Atmospheric Disturbances** Airmass meaning source region and Classification Tropical Cyclones, Extra Tropical Cyclones	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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. Gupta L S(2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad
9. Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad
10. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

6. Statistical Methods in Geography (Practical) – GEOGH302CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Use of Data in Geography: Geographical Data Matrix, Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio).	11	0	6
II.	**Tabulation and Descriptive Statistics** Frequencies (Deciles, Quartiles), Cross Tabulation, Central Tendency (Mean, Median and Mode), Centro-graphic Techniques, Dispersion (Range, Standard Deviation, Variance and Coefficient of Variation).	10	0	5
III.	**Sampling:** Meaning, Types (Probability and Non-probability) Theoretical Distribution and Normal Distribution	10	0	5
IV.	**Association and Correlation** Rank Correlation, Product Moment Correlation, and Simple Regression.	9	0	4
	Total Hours	**40**	0	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

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

1. Construct a data matrix of about (10 x 10) with each row representing an areal unit (districts or villages or towns) and about 10 columns of relevant attributes of the areal units.
2. Based on the above table, a frequency table, measures of central tendency and dispersion would be computed and interpreted for any two attributes.
3. Histograms and frequency curve would be prepared **on the entire data set** and attempt to fit a normal curve and interpreted for one or two variables.
4. From the data matrix a sample set (20 Percent) would be drawn using, random - systematic and stratified methods of sampling and locate the samples on a map with a short note on methods used.
5. Based on of the sample set and using two relevant attributes, a scatter and regression line would be plotted and residual from regression would be mapped with a short interpretation.

Reading List

1. Berry B. J. L. 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) Sankhyiki bhugol. Discovery Publishing House, New Delhi

7. Geography of India – GEOGH303CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Physical Make up** Characteristics and classification of Physiographic Divisions, drainage system and climate	11	6	0
II.	**Population** Growth, Distribution and Density of Population at national level since 1901. Factors affecting population growth distribution and density	10	5	0
III.	**Economic** Mineral and power resources production and distribution of iron ore, coal, petroleum, Natural gas agricultural production and distribution of rice and wheat Major Industrial region of India	10	5	0
IV.	**Basis of Regionalisation of India** Physiographic (R. L. Singh), Socio – cultural (Sopher), Economic(Sengupta)	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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 Intenational 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. Spate O. H. K. and Learmonth A. T. A., 1967: *India and Pakistan: A General and Regional Geography*, Methuen.
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

8. Economic Geography– GEOGH401CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Nature and scope of Economic Geography Concept and classification of economic activity	11	6	0
II.	Relationship between Economic activities and Environment Theories of Economic activity Von Thunen theory and Weber's theory	10	5	0
III.	**Primary & Secondary Activities** Subsistence and commercial Agriculture and mining. Manufacturing (Cotton Textile, Iron and Steel at world level)	10	5	0
IV.	**Tertiary Activities and Contemporary issues** Major Oceanic Routes: Atlantic, Pacific and Indian Ocean Concept of Manufacturing Regions, Special Economic Zones and Technology Parks.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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*

9. Environmental Geography– GEOGH402CC

(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	Definition and Scope of Environmental Geography Meaning and Components of Environment Ecosystem – Concept, components and Functions	11	4	0
II.	Human-Environment Relationship Environmental determinism and Possibilism Biomes- Definition (Mountain and Desert Biomes)	11	4	0
III.	Environmental Problems, their Causes Impacts and Management Air and water Pollution Biodiversity Loss	11	4	0
IV.	Environmental Management Initiatives in India Environmental Protection Act, 1982, Environmental Policy of India(2006) Chipko Movement	11	4	0
	Total Hours	**44**	**16**	**0**

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. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: *Environmental Science: Working with the Earth*, Thomson BrooksCole, 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*, Prayag Pustak 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*, Prayag Pustak Bhawan, Allahabad. (in Hindi)

10. Field Work and Research Methodology (Practical) – GEOGH403CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Field Work In Geographical Studies – Role, Value, Data and Ethics of Field-Work. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental.	11	0	6
II.	**Field Techniques** Merits, Demerits and Selection of the Appropriate Technique; Observation(Participant / Non Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview and Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch)	10	0	5
III.	**Use of Field Tools** Collection of Material for Physical and Socio-Economic Surveys.	10	0	5
IV.	**Designing the Field Report** Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report, Referencing style	9	0	4
	Total Hours	**40**	0	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

Practical Record

1. Each student will prepare an individual report based on primary and secondary data collected during field work.
2. The duration of the field work should not exceed 10 days.
3. The word count of the report should be about **8000 to 12,000** excluding figures, tables, photographs, maps, references and appendices.
4. One copy of the report on 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. Krishan, Gopal and Nina Singh, 2016. *Researching Geography*, Rutledge
5. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
6. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
7. Robinson A., 1998: "*Thinking Straight and Writing That Way*", in *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences*, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
8. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
9. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.
10. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

11. Regional Planning and Development– GEOGH501CC

Course Content and Credit Scheme(Credit – 6)

Unit	Topics	Allotted Time (Hours)		
		L	T	P
I.	**Introduction** Definition of Region, Evolution and Types of Regions: Formal, and Functional. Regional Planning; Need for Regional Planning. Types of regional planning.	11	6	0
II.	**Selection of a Region for Planning** Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning.	10	5	0
III.	**Theories and Models for Regional Planning** Model's Perroux; Myrdal, Hirschman, Rostow and Friedmann	10	5	0
IV.	**Changing Concept of Development** Concept of development and underdevelopment; Efficiency-Equity Debate Measuring development: Indicators (Economic, Social and Environmental); Concept of Human development Index.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. Blij H. J. De, 1971: *Geography: Regions and Concepts*, John Wiley and Sons.
2. Claval P.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.
10. World Bank 2001-05: *World Development Report*, Oxford University Press, New

12. Remote Sensing and GIS (Practical) –GEOGH502CC

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Remote Sensing: Definition, Development, Platforms and Types. Electromagnetic Spectrum.	11	0	6
II.	**Aerial Photography and Satellite Remote Sensing** Principles, Types and Geometry of Aerial Photograph; Principles of Remote Sensing, Satellites (Landsat and IRS) and Sensors.	10	0	5
III.	**Geographical Information System (GIS)** Definition, Types (Spatial and Non-spatial), Raster and Vector Data Structure	10	0	5
IV.	**Image Processing (Digital and Manual) and Data Analysis** Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised), Geo-Referencing; Editing and map Output; Overlays Interpretation and Application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring	9	0	4
	Total Hours	**40**	0	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

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

Reading List

1. Campbell J. B., 2007: *Introduction to Remote Sensing*, 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. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
6. Rees W. G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
8. Wolf P. R. and Dewitt B. A., 2000: *Elements of Photogrammetry: With Applications in GIS*, McGraw- Hill.
9. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

13. Evolution of Geographical Thought– GEOGH601CC

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	T	P
I.	**Introduction** Meaning nature and scope of geography A brief introduction to emergence of geography as scientific discipline Contribution of Greeks and Romans	11	6	0
II.	**Geography as a science of:** Distribution, Man Land Ratio, Areal Differentiation and Spatial Organization	10	5	0
III.	**Debates** –Determinism and Possibilism, Systematic and Regional	10	5	0
IV.	Quantitative Revolution, Behaviouralism, Radicalism, Feminism.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. Arentsen M., Stam R. and Thuijis 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.
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.

14. Disaster Management based Project Work (Practical) – GEOGH602CC

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	Flood and Flash Flood/Cloud burst	11	0	6
II.	Cyclone and Hailstorms	10	0	5
III.	Earthquake and Landslides	10	0	5
IV.	Human Induced Disasters: Fire Hazards, Road Accident, Stampade	9	0	4
	Total Hours	**40**	**0**	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

Notes; I. The project report prepared on any one field based case studies among above mentioned disasters
II. Prepared one disaster preparedness plan of respective college or locality.

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).

Skill Enhancement Course

1. Remote Sensing (Practical) – GEOGH304SEC

Course Content and Credit Scheme (Credit – 4)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Remote Sensing: Definition and Historical Development; Platforms and Types; Aerial Photography	11	0	6
II.	**Satellite Remote Sensing** Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS); Sensors	10	0	5
III.	**Image Processing** Pre-processing (Radiometric and Geometric Correction); Enhancement (Filtering); Classification (Supervised and Un-supervised)	10	0	5
IV.	**Satellite Image Interpretation.** Application of Remote Sensing: Land Use Land Cover.	9	0	4
	Total Hours	**40**	**0**	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

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

Reading List

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

2. Advanced Spatial Statistical Techniques (Practical) – GEOGH305SEC

Course Content and Credit Scheme (Credit – 4)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Statistics and Statistical Data: Spatial and non-spatial; indices of inequality and disparity (Lorenz Curve) .	11	0	6
II.	**Probability theory** probability density functions with respect to Normal, Binomial	10	0	5
III.	**Sampling** Sampling plans for spatial and non-spatial data, sampling distributions; sampling estimates for large and small samples tests involving means and proportions.	10	0	5
IV.	**Correlation and Regression Analysis:** Rank order correlation and product moment correlation; linear regression, residuals from regression, and simple curvilinear regression.	9	0	4
	Total Hours	**40**	**0**	**20**

L-Lecture, T-Tutorial and P-Practical and Practices

Practical Record: A project file consisting of 5 exercises on using following software packages

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

Reading List

1. Bart James E and Gerld M.Barber, 1996: Elementary Statistics for Geographers, The Guieford Press, London.
2. Eldon, D., 1983: Statistics in Geography: A Practical Approach, Blackwell, London.
3. Cressie, N.A.C., 1991: Statistics for Spatial Analysis, Wiley, New York.
4. Gregory, S., 1978: Statistical Methods and the Geographer (4th Edition), Longman, London.
5. Haining, R.P., 1990: Spatial Data Analysis in the Social and Environmental Science, Cambridge University Press, Cambridge.
6. Mc Grew, Jr. and Cahrles, B. M., 1993: An Introduction to Statistical Problem Solving in Geography, W.C. Brocan Publishers, New Jersey.
7. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
8. S.K., 1998: Statistics for Geoscientists : Techniques and Applications, Concept Publishing Company, New Delhi.
9. Wei, W.S.,1990: Time Series Analysis: Variate and Multivariate Methods , Addison Wesley Publishing.
10. Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, Mc Grawhill, New York.

3. Geographical Information System (Practical) – GEOGH404SEC

Course Content and Credit Scheme (Credit – 4)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Meaning and Scope of GIS Components of GIS History of Geographic Information System(GIS)	8	0	6
II.	**Data Types** GIS Data Structures: Types (spatial and Non-spatial) Raster and Vector Data	8	0	5
III.	**Spatial referencing system** Concept of Georeferencing Editing and attribute data integration	14	0	5
IV.	**GIS based Exercises on** Georeferencing, Subsetting, Extraction of Land Use/Land Cover layers of any area and thematic mapping	10	0	4
	Total Hours	**40**	**0**	**20**

L-Lecture, T-Tutorial and P-Practical and Practice

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

Reading List

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing,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 Infromation 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.

4. Research Methods (Practical) – GEOGH405SEC

Course Content and Credit Scheme (Credit – 4)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Geographic Enquiry** Concept, Framing Research Questions, Objectives and Hypothesis; Literature Review	11	6	0
II.	**Data Collection** Type and Sources of Data; Methods of Collection; Preparing Sample Questionnaire	10	5	0
III.	**Data Analysis** Data Tabulation Data Analysis (Qualitative and Quantitative) Data Representation Techniques (Maps and Diagrams)	10	5	0
IV.	**Structure of a Research Report** Abstract, Main Text; References and Bibliography	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Practical Record: A project file consisting of 5 exercises on using any relevant data set.

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. Misra, R.P. (2002) Research Methodology, Concept Publications, New Delhi.
5. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
6. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
7. Robinson A., 1998: "*Thinking Straight and Writing That Way*", in *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences*, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
8. Special Issue on "Doing Fieldwork" *The Geographical Review* 91:1-2 (2001).
9. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.
11. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.
12. Yadav, H. (2013) Shodh Pravidhi Evam Matratamak Bhugol, Raja Publications, Delhi.

Elective Discipline Specific

1. Population Geography– GEOGH503EDS1

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time		
		L	**T**	**P**
I.	**Introduction** Definition, Nature and Scope of population geography Sources of Data with special reference to India (Census, Vital Statistics and National Sample Survey Organization (NSSO).	11	6	0
II.	**Population** Size, Distribution and Growth – Determinants and Patterns. Theories of Growth – Malthusian Theory and Demographic Transition Theory.	10	5	0
III.	**Population Dynamics** Fertility, Mortality and Migration – Measures, Determinants and Implications. Population Composition and Characteristics – Age-Sex Composition; Rural and Urban Composition; Literacy.	10	5	0
IV.	**Contemporary Issues** Ageing of Population; Declining Sex Ratio; Rural Depopulation.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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 Granth Academy,Bhopal
11. Maurya S D (2009) Jansankya Bhugol, Sharda Putak Bhawan, Allahabad
12. Chandna, R C (2006), Jansankhya Bhugol, Kalyani Publishers, Delhi

2. Resource Geography– GEOGH504EDS1

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	Natural Resource: Concept, Classification.	11	6	0
II.	Distribution, Utilisation, Problems and Management: Land Resources Water Resources Forests Resources	10	5	0
III.	Natural Resources Appraisal Depletion and Degradation of Natural Resources, Causes and Impacts (Land Water and Forest)	10	5	0
IV.	Uses and Misuse of Natural Resources Conservation of Natural Resources Sustainable Resource Development	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. Cutter S. N., Renwich H. L. and Renwick W., 1991: *Exploitation, Conservation,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.

3. Urban Geography– GEOGH505EDS2

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Urban geography: Definition, nature and scope Patterns of Urbanisation in developed and developing countries	11	6	0
II.	**Classification of cities** Functional classification of cities: Quantitative and Qualitative Methods	10	5	0
III.	**Urban Issues** Problems of housing, slums, civic amenities (water and transport) Concept of Smart Cities	10	5	0
IV.	**Case studies** Delhi, Kolkata and Chandigarh with reference to Land use and Urban Issues	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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. 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

4. Agricultural Geography– GEOGH506EDS2

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Definition, nature and scope Land use/ land cover: Concept and classification.	11	6	0
II.	**Determinants of Agriculture** Physical, Technological and Institutional	10	5	0
III.	**Agricultural Systems of the World** Whittlesey's classification of Agricultural region Agricultural Land use model of Von Thuenen, its modification and relevance.	10	5	0
IV.	**Agricultural Regions of India** Agro-climatic and Agro-ecological Regions. Agricultural Revolutions in India: Green, White and Blue	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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. Grigg, 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.

5. Geography of Health and Wellbeing– GEOGH603EDS3

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Perspectives on Health: Definition; linkages with environment, development and health; Driving forces in health and environmental trends: population dynamics, urbanization, poverty and inequality.	11	6	0
II.	**Environmental Quality and Health** Human activities and its implication on environment: Land use and agricultural development; industrialization; transport and energy.	10	5	0
III.	**Exposure and Health Risks** Air pollution; household wastes; water; housing; workplace. Health and Disease as related to Environmental Context with special reference to India.	10	5	0
IV.	**Climate Change and Human Health** Changes in climate system – heat and cold and its impact on Human being. Biological disease agents: food production and nutrition	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
6. Gatrell, A.,and Loytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
7. Hardham T. and Tannav M.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
8. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.
9. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
10. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
11. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

6. Political Geography– GEOGH604EDS3

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Concept, Nature and Scope. Attributes of State – Frontiers, Boundaries, Shape, Size, Territory and Sovereignty Concept of Nation, State and Nation State Geopolitics	11	6	0
II.	**Electoral Geography** Geography of Voting, Geographic Influences on Voting pattern, Geography of Representation, Gerrymandering.	10	5	0
III.	**Political Geography of Resource Conflicts** Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals.	10	5	0
IV.	**Politics of Displacement** Issues of relief, compensation and rehabilitation with reference to Dams.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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 M Cernea (eds.) Development, Displacement and Resettlement – Focus on Asian Experience, 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 and Asia* (vo.2), Frank Cass

7. Hydrology and Oceanography– GEOGH605EDS4

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	T	P
I.	**Introduction** Hydrological Cycle: human impact on the hydrological cycle; Hydrological input and output: Precipitation, interception, evaporation, evapo-transpiration, infiltration, ground-water, run off and over land flow.	11	6	0
II.	**River Basins and their Problems** Characteristics of river basins, basin surface run-off, measurement of river discharge; floods.	10	5	0
III.	**Ocean Floor Topography and Oceanic Movements** Waves, Currents and Tides. Ocean Salinity and Temperature: Distribution and Determinants.	10	5	0
IV.	**Ocean Resources:** Coral Reefs Types Theories of Origin Marine Deposits and Classification	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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, 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

8. Social Geography– GEOGH606EDS4

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time		
		L	**T**	**P**
I.	**Introduction** Social Geography: Concept, Nature and Scope.	11	6	0
II.	**Peopling of India** Technology and Occupational Change; Migration.	10	5	0
III.	**Social Categories** Caste, Class, Religion, Race and Gender and their Spatial distribution in India	10	5	0
IV.	**Geographies of Welfare and Well-being** Concept and Components – Healthcare, Housing and Education. Social Geographies of Inclusion and Exclusion, Slums, Communal Conflicts and Crime.	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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.

Elective Generic Papers

1. Disaster Management– GEOGH103EG

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Disasters: Concepts, Hazards, Risk and Vulnerability Classification of Disaster	11	6	0
II.	**Natural Disasters in India** Flood, Landslide, Drought, Cyclone, Earthquake and Tsunami: Causes, Impact and Distribution	10	5	0
III.	**Human Induced Disasters in India** Fire, Road accidents, DID (Development Induced Disasters): Causes, Impact and Distribution	10	5	0
IV.	**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	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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.

2. Geography of Tourism– GEOGH104EG

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Concept nature scope and issues of geography of Tourism Geographical Parameters of Tourism by Robinson.	11	6	0
II.	**Type of Tourism** Nature Tourism, Cultural Tourism, Medical Tourism, Pilgrimage Tourism	10	5	0
III.	**Recent Trends of Tourism** International and Regional; Domestic Tourism (India); Eco-Tourism, Sustainable Tourism, Impact of Tourism on Economy; Environment; Society	10	5	0
IV.	**Tourism in India** Tourism Infrastructure: A Case Study of Himachal Pradesh National Tourism Policy	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

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

3. Spatial Information Technology– GEOGH203EG

Course Content and Credit Scheme(Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Definitions, Concept and Historical Development	11	6	0
II.	**Spatial Information/Data** Web data sources; Registration and projection; Data structures; Data interpolation and modeling.	10	5	0
III.	**Working of spatial information system** Functions of Spatial information system: Information retrieval; Topological modeling; Networks; Overlay; Data output.	10	5	0
IV.	**Application** Application of Spatial Information Technology in Geography	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. C. Esperança and H. Samet, An overview of the SAND spatial database system, to appear in Communications of the ACM, 1997. http://www.cs.umd.edu/~hjs/pubs/sandprog.ps.gz
2. G. Hjaltason and H. Samet, Ranking in Spatial Databases in Advances in Spatial Databases —4th Symposium, SSD'95, M. J. Egenhofer and J. R. Herring, Eds., Lecture Notes in Computer Science 951, Springer-Verlag, Berlin, 1995, 83-95. http://www.cs.umd.edu/~hjs/pubs/incnear.ps
3. H. Samet, Spatial Data Structures in Modern Database Systems: The Object Model, Interoperability, and Beyond, W. Kim, Ed., Addison-Wesley/ACM Press, 1995, 361-385. http://www.cs.umd.edu/~hjs/pubs/kim.ps
4. H. Samet, Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS, Addison-Wesley, Reading, MA, 1990. ISBN 0-201- 50300-0.
6. H. Samet, The Design and Analysis of Spatial Data Structures, Addison-Wesley, Reading, MA, 1990. ISBN 0-201-50255-0.
7. H. Samet and W. G. Aref, Spatial Data Models and Query Processing in Modern Database Systems: The Object Model, Interoperability, and Beyond, W. Kim, Ed., Addison-Wesley/ACM Press, 1995, 338-360. http://www.cs.umd.edu/~hjs/pubs/kim2.ps
8. C. D. Tomlin, Geographic Information Systems and Cartographic Modeling, Prentice-Hall, Englewood Cliffs, NJ, 1990. ISBN 0-13-350927-3.

4. Regional Development– GEOGH204EG

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Concept of Region, Types of Regions: Formal, Functional and Vernacular Need of Regional Planning	11	6	0
II.	**Choice of a Region for Planning** Characteristics of an Ideal Planning Region Delineation of Planning Region Regionalization of India for Planning (Agro Ecological Zones)	10	5	0
III.	**Strategies/Models for Regional Planning** Growth Pole Model of Perroux Growth Centre Model in Indian Context	10	5	0
IV.	**Problem Regions and Regional Planning** Backward Regions and Regional Plans- Special Area Development Plans in India DVC-Its Success Story and the Failures	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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 3rd 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. Sdyasuk Galina and P Sengupta (1967): *Economic Regionalisation of India*, Census of India

10. Mohan, Krishan(2005). Addressing Regional Backwardness: An Analysis of Area Development Programmes in India. Manak Publications New Delhi

5. Climate Change: Vulnerability and Adaptation– GEOGH306EG

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Concept and understanding of Climate Change Green House Gases and Global Warming	11	6	0
II.	**Climate Change and Vulnerability** Physical Vulnerability Economic Vulnerability Social Vulnerability	10	5	0
III.	**Impact of Climate Change on** Agriculture and Water Flora and Fauna Human Health	10	5	0
IV.	**Adaptation and Mitigation** Global Initiatives with Particular Reference to South Asia. National Action Plan on Climate Change; Local Initiatives (Urban Local Bodies, Panchayats)	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

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.

6. Rural Development– GEOGH307EG

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Defining Development: Inter-Dependence of Urban and Rural Sectors of the Economy Need for Rural Development, Gandhian Approach of Rural Development.	11	6	0
II.	**Rural Economic Base** Panchayatiraj System, Agriculture and Allied Sectors. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY.	10	5	0
III.	**Target Group Approach to Rural Development** MNREGA, Jan Dhan Yojana Rural Connectivity	10	5	0
IV.	**Provision of Services** Physical and Socio-Economic Access to Elementary Education and Primary Health Care Micro credit	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. Gilg A. W., 1985: *An Introduction to Rural Geography*, Edwin Arnold, London.
2. Krishnamurthy, J. 2000: *Rural Development - Problems and Prospects*, Rawat Publs., Jaipur
3. Lee D. A. and Chaudhri D. P. (eds.), 1983: *Rural Development and State*, Methuen, London.
4. Misra R. P. and Sundaram, K. V. (eds.), 1979: *Rural Area Development: Perspectives and Approaches*, Sterling, New Delhi.
5. Misra, R. P. (ed.), 1985: *Rural Development: Capitalist and Socialist Paths*, Vol. 1, Concept, New Delhi.
6. Palione M., 1984: *Rural Geography*, Harper and Row, London.
7. Ramachandran H. and Guimaraes J.P.C., 1991: *Integrated Rural Development in Asia – Leaning from Recent Experience*, Concept Publishing, New Delhi.
8. Robb P. (ed.), 1983: *Rural South Asia: Linkages, Change and Development*, Curzon Press.
9. UNAPDI 1986:*Local Level Planning and Rural Development: Alternative Strategies*. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publs. Co., New Delhi.
10. Wanmali S., 1992: *Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India*, International Food Policy Research Institute, Washington, D.C.
11. Yugandhar, B. N. and Mukherjee, Neela (eds.) 1991: *Studies in Village India: Issues in Rural Development*, Concept Publs. Co., New Delh
12. Mohan, Krishan(2005). Addressing Regional Backwardness: An Analysis of Area Development Programmes in India. Manak Publications New Delhi

7. Industrial Geography– GEOGH406EG

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time (Hours)		
		L	**T**	**P**
I.	**Introduction** Definition, Nature and Scope of Industrial Geography	11	6	0
II.	**Types, Geographical Characteristics and Location of Industries** Weber's Theory, Small and Medium Industries, Heavy Industries: Coal and Iron based industries, Rural based Industries Footloose Industry.	10	5	0
III.	**Industrial Complexes** Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region Chota Nagpur Industrial Region	10	5	0
IV.	**Impact of Industrialization in India** Environmental Social Economic Industrial Policy of India	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

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

8. Sustainable Development– GEOGH407EG

Course Content and Credit Scheme (Credit – 6)

Unit	Topic	Allotted Time		
		L	**T**	**P**
I.	**Introduction** Sustainable Development: Definition, Components, Limitations and Historical Background.	11	6	0
II.	**The Millennium Development Goals and SDGs** National Strategies and International Experiences Sustainable Regional Development	10	5	0
III.	**Inclusive Development** Education, Health; Climate Change The role of higher education in sustainability Sustainable Livelihood Model Policies and Global Cooperation for Climate Change	10	5	0
IV.	**Sustainable Development Policies and Programmes** Rio+20, Financing for Sustainable Development; National Environmental Policy, Clean Development Mechanism (CDM).	9	4	0
	Total Hours	**40**	**20**	**0**

L-Lecture, T-Tutorial and P-Practical and Practices

Reading List

1. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) Just Sustainabilities: Development in an Unequal World. London: Earthscan. (Introduction and conclusion.).
2. Ayers, Jessica and David Dodman (2010) "Climate change adaptation and development I: the state of the debate". Progress in Development Studies 10 (2): 161-168.
3. Baker, Susan (2006) Sustainable Development. Milton Park, Abingdon, Oxon; New York, N.Y.: Routledge. (Chapter 2, "The concept of sustainable development").
4. Brosius, Peter (1997) "Endangered forest, endangered people: Environmentalist representations of indigenous knowledge", Human Ecology 25: 47-69.
5. Lohman, Larry (2003) "Re-imagining the population debate". Corner House Briefing 28.
6. Martínez-Alier, Joan et al (2010) "Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm" Ecological Economics 69: 1741-1747.
7. Merchant, Carolyn (Ed.) (1994) Ecology. Atlantic Highlands, N.J: Humanities Press. (Introduction, pp 1-25.)
8. Osorio, Leonardo et al (2005) "Debates on sustainable development: towards a holistic view of reality". Environment, Development and Sustainability 7: 501-518.
9. Robbins, Paul (2004) Political Ecology: A Critical Introduction. Blackwell Publishing.