SYLLABUS

B. A. (Honours) Programme

(CHOICE BASED CREDIT SYSTEM)

GEOGRAPHY

JAGANNABH BAROOAH COLLEGE (AUTONOMOUS)
JORHAT, ASSAM

Course Structure- GEOGRAPHY (Honours)

Sem-ester	Course No	Course Code	Course Title	Course Type	Marks Distribution					
					Th	Th IA	PR	PR - IA	Total	
1st	C-01	GGRC-101	Geomorphology	Theory	80	20			100	
	C-02	RGGC-102	Cartographic Techniques	Practical			80	20	100	
2nd	C-03	GGRC-201	Human Geography	Theory	80	20			100	
	C-04	GGRC-202	Thematic Cartography	Practical			80	20	100	
3rd	C-05	GGRC-301	Climatology	Theory	80	20			100	
	C-06	GGRC-302	Statistical Methods in Geography	Practical			80	20	100	
	C-07	GGRC-303	Geography of India	Theory	80	20			100	
	SEC01	GGRS-301	Remote Sensing	Project			40*	10	50	
4th	C-08	GGRC-401	Economic Geography	Theory	80	20			100	
	C-09	GGRC-402	Field Work & Research Methodology	Theory	80	20			100	
	C-10	GGRC-403	Environmental Geography	Theory	80	20			100	
	SEC02	GGRS-401	Geographic Information System (GIS)	Project			40*	10	50	
5th	C-11	GGRC-501	Regional Planning & Development.	Theory	80	20			100	
	C-12	GGRC-502	Remote Sensing & GIS	Practical	80	20			100	
	DSE01A	GGRD-01A	Population Geography	Theory	80	20			100	On going
	DSE01B	GGRD-501B	Geography of Tourism	Theory	80	20			100	
	DSE02A	GGRD-502A	Geography of Agricultural Activity	Theory	80	20			100	On going
	DSE02B	GGRD-502B	Geography of Rural Development.	Theory	80	20			100	
6th	C-13	GGRC-601	Evolution of Geographic Thought	Theory	80	20			100	
	C-14	GGRC-602	Disaster Management	Project			80*	20	100	
	DSE03A	GGRD-601A	Political Geography	Theory	80	20			100	On going
	DSE03B	GGRD-601B	Geography of Health & Well Being	Theory	80	20			100	
	DSE04A	GGRD-602A	Hydrology & Oceanography	Theory	80	20			100	On going
	DSE04B	GGRD-602B	Social Geography	Theory	80	20			100	

Generic Elective-Geography										
1st	GE101	GGRG101	Disaster Management	Theory + Practical	50	15	30	05	100	
2nd	GE201	GGRG-201	Regional Development	Theory + Practical	50	15	30	05	100	
3rd	GE301	GGRG-301	Climate Change: Vulnerability & Adaptation	Theory + Practical	50	15	30	05	100	
4th	GE401	GGRG-401	Sustainable Development	Theory + Practical	50	15	30	05	100	

Project-40 (Report-25, Presentation and Vivavoce-15); IA-10
Project-80 (Report-50, Presentation and Vivavoce-30); IA-20

Detailed Syllabus for Core Course
B.A. (Honours) Geography

SEMESTER-I
COURSE TITLE: GEOMORPHOLOGY
COURSE CODE: GGRC-101 **COURSE NO: C- 01**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100END SEMESTER: 80 **INTERNAL ASSESSMENTS: 20**

Objective : To introduce various landforms on the surface of the earth, the interior of the earth, the geomorphic processes and the genesis of various landforms on the earth's surface.

COURSE CONTENT

Unit-I: Introduction to geomorphology (Classes-16, Marks-16)
Nature and Scope of geomorphology, its trend of development and the fundamental concepts in geomorphology.

Unit-II: . Endogenic processes (Classes-28, Marks-32)
Earth's interior and the internal structure; seismological evidence with regard to earth's structure; Orogenic and Epeirogenic movement of the earth; folding, faulting and associated landforms; theory of continental drift and plate tectonics; earthquakes and volcanoes.

Unit-III: . Exogenic processes (Classes-28, Marks-32)
Geomorphic processes of weathering and mass wasting; cycle of erosion (Davis and Penck); evolution of fluvial, karst, aeolian, Glacial and coastal landforms (erosional and depositional); drainage patterns, introduction to basin parameters, drainage basin as a geomorphic unit.

Selected Readings:

1. Ahmed E, 1996, Physical Geography,Kalyani Publisher,New Delhi.
2. Bloom Arther, 2011, Geomorphology: A Systematic Analysis of
3. Bridges E M, 1990, World Geomorphology, Cambridge University Press, Cambridge.
4. Dayal P, 2001, A Text book of Geomorphology, Shukla Book Depot,Patna.
5. Christopherson R, Geosystems: An Intrduction to Physical Geography, 8 Ed, Macmillan Publishing Company.
6. Gregory K J, 1985, The Nature of Physical geography, Edward Arnold
7. Kale V S and A Gupta, 2001, Introduction to Geomorphology, Oriental Longman, Hyderabad.
8. Knighton A D, 1984, Fluvial Forms and Processes, Edward Arnold Publishers, London.
9. Lal D S, 2009, Physical Geography, Sarada Pustak Bhawan.
10. Leopold, Wolmen, Miller, 2005, Fluvial Process in Geomorphology, S. Chand & Co. New Delhi.
11. Richards K S, 1982, Rivers: Forms and Processes in Alluvial Channels, Methuen, London.
12. Selby M J, 2005, Earth's Changing Surface, Indian Edition, Oxford University Press.
13. Skinner B J and C P Stephen, 2000, The DynamicEarth: An Introduction to Physical Geology, 4th Edition, John Willey & Sons.
14. Singh S, 2009, Fundamentals of Physical Geography, Prayag Pustaka Mahal, Allahabad.
15. Singh S, 2011, Geomorphology, Prayag Pustaka Mahal, Allahabad.
16. Steer J A, 2008, The Unstable Earth, Indian Edition, Kalyani Publishers, Ludhiana.
17. Strahler A N, 2012, Physical Geography, John Willey & Sons.
18. Thornbury W D, 2006, Principles of Geomorphology, John Willey & Sons.
19. Thorn E C, Introduction to Theoretical Geomorphology, Unwin Hayman.
20. Tikha R N, 2003, Physical Geography, Kedarnath Ramnath & Co., Meerut.
21. Talukdar S, 2014, Introduction to Map Projection, Eastern Book House Publication, Guwahati.

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SEMESTER-I
COURSE TITLE: CARTOGRAPHIC TECHNIQUES (Practical)
COURSE CODE: GGRC-102 **COURSE NO: C- 02**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objectives: To introduce the basic techniques of mapmaking

COURSE CONTENT

Unit-I: Introduction to cartography, concept of scale and mapping (Classes-2x5, Marks-16)
Concept and types of map; Cartograms (*two illustrative exercises*); types of scales, construction of graphical scale (linear, comparative and diagonal), conversion of scale from one form to another; application of scale in cartograms (linear, areal and volumetric representation of geographical data)

Unit-II: Fundamentals of map projection (Classes-2x9, Marks-24)
Concept of map projection, classification of map projection; preparation of graticule on the following projections with their properties, uses and limitations: Polar Zenithal Stereographic, Polar Zenithal Orthographic, Simple Cylindrical, Cylindrical Equal-Area, Conical Projection with one standard parallel, Conical Projection with two standard parallels, Bonne's Projection

Unit-III: Interpretation of topographical maps (Classes-2x7, Marks-24)
Interpretation of topographical maps covering mountainous and plain areas; contour study of basins in mountainous and plain areas; preparation of longitudinal profile of river; preparation of transact chart.

Unit-IV: Slope and relief analysis using topographical maps (Classes-2x4, Marks-16)
Slope analysis using Wentworth's method and Smith's relative relief analysis.

Selected Readings:

1. Gupta K K and V C Tyagi, 1992, Working With Map, Survey of India, DST, New Delhi
2. Misra R P and A Ramesh, 1989, Fundamentals of Cartography, Concept Publishing Company, New Delhi.
3. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
4. Robinson A H, 2009, Elements of Cartography, John Willey & Sons.
5. Sarkar A, 2015, Practical Geography, Orient Black Swan Pvt. Ltd, New Delhi.
6. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.
7. Talukdar S, 2014, Introduction to Map Projection, Eastern Book House Publication, Guwahati.

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SEMESTER-II
COURSE TITLE: HUMAN GEOGRAPHY
COURSE CODE: GGRC-201 **COURSE NO: C- 03**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective : To develop the concepts of human response to environment, various aspects relating to population change and to introduce the factors that control human life as well as activities in different geographical set up.

COURSE CONTENT

Unit-I: Introduction to human geography **(Class- 12, Marks- 12)**

Human Geography- its definition, nature and scope; trend of development of human geography; introduction to the branches of human geography.

Unit-II: Approaches to human geography **(Class- 16, Marks- 16)**

Environmental determinism and possibilism; concept of human ecology, behaviouralism and welfare approach to human geography.

Unit-III: Population study at global perspective **(Class-20, Marks-24)**

Concept of population growth, its components and determinants; Population distribution and factors affecting distribution; demographic transition theory; concept and types of migration.

Unit-IV: Geography of settlement **(Class-15, Marks-16)**

Origin of settlement, characteristics of Settlement, rural and urban settlement; classification of urban settlements; trend and spatial patterns of urbanization.

Unit-IV: Population-resource relationship **(Class- 10, Marks- 12)**

Man-land Ratio; concept of optimum population, under population and over population

Selected Readings:

1. Chandra R C, 2010, Geography of Population , Kalyani Publisher, New Delhi
2. Daniel P A and M F Hopkinson, 1989, The Geography of Settlement, Oliver & Boyd, London.
3. Das M (ed.), 2006, Population Resource and Development, Eastern Book House Publications, Guwahati.
4. Husain M, 2005, Human Geography,Rawat Publications, Jaipur.
5. Hassan Md. Izhar, 2005, Population Geography, Rawat Publications, Jaipur.
6. Jhimgan M L et al., 2007, Demography, Vrinda Publishers Pvt. Ltd.
7. Johnston R et al. 2008, The Dictionary of Human Geography, Blackwell Publication.
8. Jones A, 2012, Human geography : The Basis, Routledge Taylor & Francis Group, London.
9. Mahto K, 1985, Population Mobility and economic Development in Eastern India, Inter-India Pub., Delhi.
10. Negi B S, 2010, Human Geography, Kedarnath Ramnath, Meerut.
11. Ramachandran R, 2012, Urbanization and Urban System in India, Oxford India.
12. Singh L R, 2005, Fundamentals of Human Geography, Sarada Pustak Bhawan.
13. Singh R N, 2003, Geography of Settlement, Rawat Publications, Jaipur.

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SEMESTER-II
COURSE TITLE: THEMATIC CARTOGRAPHY (Practical)
COURSE CODE: GGRC-202 **COURSE NO: C- 04**
CREDITS: 06 **NO. OF CLASSES: 70**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objectives : Introduction to various techniques of theme based map making and their representation.

Unit-I: Fundamentals of maps and cartograms **(Class-2x5, Marks-16)**

Introduction to maps, their characteristics and classification with illustrations; introduction to cartograms and their characteristics, types of cartograms.

Unit-II. Cartographic Representation **(Class-2x10, Marks-24)**

Cartographic representation of geographical data with the help of line, bar, Circles; preparation of complex thematic maps using variability and isochronic values and drawing of flow maps (three manual and three computer drawing)

Unit-III: Thematic Mapping **(Class-2x8, Marks-20)**

Properties, uses and limitations of thematic maps; preparation of choropleth using geographical data

Unit-IV: Mapping Practices **(Class-2x12, Marks-20)**

Presentation of geographical data using point, area, circle and three dimensional figures on maps. (one exercise of each type); preparation and interpretation of thematic maps (two exercises on complex thematic maps - one on physical and one on human geographic database).

Selected Readings:

1. Cuff J D and M T Mattson, 1982, Thematic Maps: Their Design and Production, Methuen Young Books
2. Dent B D et al, 2008, Cartography: Thematic Map Design, Mcgraw-Hill Higher Education.
3. Gupta K K and V C Tyagi, 1992, Working With Map, Survey of India, DST, New Delhi
4. Misra R P and A Ramesh, 1989, Fundamentals of Cartography, Concept Publishing Company, New Delhi.
5. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
6. Robinson A H, 2009, Elements of Cartography, John Willey & Sons.
7. Sarkar A, 2015, Practical Geography, Orient Black Swan Pvt. Ltd, New Delhi.
8. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.
9. Tyner J A, 2010, Principles of Map Design, The Guilford Press.

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SEMESTER-III
COURSE TITLE: CLIMATOLOGY
COURSE CODE: GGRC-301 **COURSE NO: C- 05**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To conceptualize and understand the atmosphere of the earth and the atmospheric processes that affect human activities on the surface of the earth.

COURSE CONTENT

Unit-I: Composition and Structure of Atmosphere (Classes-8, Marks-10)
Atmospheric composition, atmospheric structure and variation of atmospheric composition with altitude, latitude and season.

Unit-II: Insolation and Atmospheric Temperature (Classes-8, Marks-10)
Heat Budget, temperature inversion and factors of atmospheric temperature variation

Unit-III: Atmospheric Moisture (Classes-10, Marks-10)
Concept of Global Hydrological Cycle, evaporation, humidity, condensation, fog and clouds and types of precipitation.

Unit-IV: Atmospheric pressure and winds (Classes-16, Marks-20)
Planetary winds, forces affecting planetary winds, global circulation of permanent wind system and jet streams.

Unit-V: Classification of World's Climate (Classes-18, Marks-18)
Vladimir Koppen's scheme, Thornthwait's scheme, global, regional and local changes in climate

Unit-V: Atmospheric disturbances (Classes-12, Marks-12)
Tropical cyclone, extra-tropical cyclone, origin and mechanism of monsoon

Selected Readings:

1. Barry R. G. and Carleton A. M., 2001; Synoptic and Dynamic Climatology, Roulledge, UK.
2. Barry R. G. and Corley R. J., 1998: Atmosphere. Weather and Climate, Routledge,
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. 6 Trewartha G. T. and Home L. H., 1980; An Introduction to Climate, McGraw-Gupta L S(2000); Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya,Delhi
7. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad
8. Vatal. M (1986): Bhautik Bhugol, Central Book Depot, Allahabad
9. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

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SEMESTER-III
COURSE TITLE: STATISTICAL METHODS IN GEOGRAPHY (Practical)
COURSE CODE: GGRC-302 **COURSE NO: C- 06**
CREDITS: 06 **NO. OF CLASSES: 50**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Theory Marks-80; Internal Assessment-20; Total No. of Classes-50

Objectives: To introduce the statistical methods used in geographical studies; graphical representation of statistical data

COURSE CONTENT

Unit-I: Measures of Central Tendency **(Class- 2x3, Marks- 10)**
Cartographic application of Mean, Median and Mode and their graphical representation

Unit-II: Measures of Dispersions **(Class- 2x7, Marks- 20)**
Cartographic representation of mean deviation on maps, calculation of standard deviation and co-efficient of variation.

Unit-III: Introduction to Sampling Techniques **(Class- 2x5, Marks- 15)**
Unrestricted random sampling, convenient sampling, judgment sampling and their characteristics.

Unit-IV: Measures of Inequalities **(Class- 2x5, Marks- 15)**
Lorenz curve, location quotient and nearest neighbour analysis

Unit-V: Association and Correlation Practices **(Class- 2x5, Marks- 20)**
Karl Pearson's method of correlation, rank correlation, simple regression analysis, regression residuals

Selected Readins:

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, NewYork.
11. Shinha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi

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SEMESTER-III
COURSE TITLE: GEOGRAPHY OF INDIA
COURSE CODE: GGRC-303 **COURSE NO: C- 07**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To give an insight into the regional geography of India covering its physical and cultural details.

COURSE CONTENT

Unit-I: Physical Background of India **(Class-20, Marks-20)**
Stratigraphical study of the Indian landmass with characteristics and classification; physical divisions of India; climate; drainage system and national watershed.

Unit-II: Studies on Indian population **(Class-12, Marks-15)**
Growth of India's population, variation in population density, racial, caste-wise and linguistic distribution of India's population.

Unit-III: Economic Activities **(Class-18, Marks-20)**
Minerals and power resources- distribution and utilization of iron ore, coal, petroleum and natural gas
Agricultural Activities- Regional Distribution and Production of Rice, Wheat and Cotton
Industrial development- automobile and information technology

Unit-IV: Regionalization of India **(Class-12, Marks-15)**
Physiographic Regions after Ram Lakhan Singh
Socio-cultural Regions after Hemlota Rao
Economic Regions after Sengupta

UNIT-V: Physic Background of Assam **(Class-10, Marks-10)**
Physiographic lay-out of the state; its climate, drainage, and natural vegetation

Selected Readings:

1. Deshpande C. D., 1992: India: A Regional Interpretation, 1CSSR, 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 Pubis., 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. Sarma, T.C. (2013) Economic Geography of India, Rawat Publication, Jaipur

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SEMESTER-IV
COURSE TITLE: ECONOMIC GEOGRAPHY
COURSE CODE: GGRC-401 **COURSE NO: C- 08**
CREDITS: 06 **NO. OF CLASSES:72**
MARKS: 100 END SEMESTER: 80 INTERNAL ASSESSMENTS: 20

Objective **:** To introduce various economic activities with their bases as well as their significance to the economy of the country.

COURSE CONTENT

Unit-I: Introduction to various economic activities (Classes-10, Marks-10)

Concept and classification of economic activities- primary, secondary, tertiary, quaternary and quinary activities of people; general observation upon influence of geographical environment over economic activities.

Unit-II: Factors affecting location of economic activities (Classes-10, Marks-10)
Agricultural land-use theory of Von Thunen; Weber's theory of industrial location

Unit-III: Primary economic activities: characteristics and distribution (Classes-12, Marks-15)
Subsistence and commercial farming practices; mining, forestry and fishing

Unit-IV: Secondary economic activities: characteristics and distribution (Classes-12, Marks-15)
Global distribution pattern of Cotton Textiles and iron & steel industries; concept of manufacturing regions; Special Economic Zones and Technology Parks.

Unit-V: Tertiary Activities: Geography of Transport (Classes-14, Marks-15)
Relative advantages of road, rail, IWT, marine shipping and air transport; concept of transport co-ordination; Transport Network Analysis- geometric shape and mobility function study on transport network

Unit-VI: Tertiary Activities: Geography of Trade and Services (Classes-14, Marks-15)
World's international trade and trade zones; major ocean trade routes- North Atlantic Route, Mediterranean-Suez-Asiatic Route and Cape Route; overview of inter-regional and international flow of skilled & semi-skilled workers.

Selected Readings:

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. 9 Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford

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SEMESTER-IV
COURSE TITLE: FIELD WORK & RESEARCH METHODOLOGY (Practical)
COURSE CODE: GGRC-402 **COURSE NO: C- 09**
CREDITS: 06 (theory-04, Practical-02) **NO. OF CLASSES : 96 (48+48)**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**
(16 classes + 60 hours Field Work & Report Designing)

(This paper carries 50 marks for Report Designing, 30 marks for Presentation and Viva-voce)

Objectives: To introduce the students to the field techniques for collection of data in the field, their analysis, representation and preparation of report based on field work and to highlight the significance of case study.

COURSE CONTENT

Unit-I: Field work in geographical study **(Class-10, Marks-0)**

Role of field work in geography, ethics and significance of field work

Unit-II: Case study and selection of study area **(Class-10, Marks-0)**

Significance of Case Study; selection of study area considering physical, environmental and human aspects

Unit-III: Techniques of **Field-Work** **(Class-10, Marks-0)**
Selection of appropriate Techniques for Field data Collection; Questionnaires (Open/Closed/Structured/ Non Structured); Interview method of data collection; space Survey (transects, quadrants, field sketching)

Unit-IV: Use of secondary sources for data **(Class-10, Marks-0)**

Collection of secondary data with regard to physical, human and socio-economic aspects.

Unit-V: Designing of field report **(Classes-30, Marks-50)**

Presentation of final report incorporating objective, methodology, analysis, finding and suggestions and conclusions.

Instructions

1. Each student has to prepare an individual report based on primary data from the field as well as and secondary data collected from other sources.
2. The duration of the field work should not exceed 10 days.
3. The word count of the report should be from 8000 to 12000 (excluding figures, tables, photographic maps, references and appendices).
4. One copy of the report on A-4 size paper should be submitted in bound form
5. There shall be a Continuous Evaluation in each step

Selected Readings:

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: "Paticipant 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 Pubis. Co., New Delhi.
5. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Pubis.Co., New Delhi
6. Robinson A., 1998: "Thinking Straight and Writing Thai Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, cds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
8. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography. Kendall/Hunt.
9. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

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SEMESTER-IV
COURSE TITLE: ENVIRONMENTAL GEOGRAPHY
COURSE CODE: GGRC-403 **COURSE NO: C-10**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To generate awareness among the students about environment, related issues and various environmental programmes and policies

COURSE CONTENT

Unit-I: Fundamentals of Environmental Geography **(Class-12, Marks-12)**

Concept of environment, relevance of environmental studies; man-environment relationship in different phases including use of fire, domestication of animals & plants, application of wheels; causes of man-induced environmental Degradation.

Unit-II: Adaptation of Man to Environment **(Class-12, Marks-14)**

Adaptation of man to tropical rainforest, tropical deserts, temperate grassland, hilltops & plateaus and fertile river-valley plains

Unit-III: Ecosystem Study **(Class-12, Marks-14)**

Concept, ctructure and function of ecosystem; concept of biodiversity and relevance of its preservation; conflict of environment verses development (as problem) and concept of sustainable development (as solution)

Unit-IV: Environmental Problems **(Class-12, Marks-14)**

Pollution, deforestation and desertification; environmental crisis in industrial and urban areas; Natural Hazards— flood, drought, cyclone

Unit-V: Environmental Impact Study **(Class-12, Marks-14)**

Approaches to environmental impact assessment, management of Environmental Impact; disaster and disaster management

Unit-VI: Environmental Programmes and Policies **(Class-12, Marks-12)**

Environmental Management Programmes at Global, Regional and Local perspectives; function of world summits; India's National Environment Policy

Selected Readings:

1. Chandna R. C, 2002; Environmental Geography, Kalyani, Ludhiana.
2. Cunninghum W. P. and Cunninghum M. A., 2004; Principals of Environmental Science: Inquiry and Applications, Tata McGraw 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: GE04: Environment for Development. United Nations Environment Programme-II. 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
11. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford & IBH Publications.

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B.A. (Honours) Geography

SEMESTER-V
COURSE TITLE: REGIONAL PLANNING & DEVELOPMENT
COURSE CODE: GGRC-501 **COURSE NO: C-11**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective**:** To provide the students with the concept of Region, Development and indicators of development.

COURSE CONTENT

Unit-I: Concept of Regional Planning **(Class-14, Marks-16)**

Definition and evolution of the concept of region; types of region – formal, functional and planning regions; concept of regional planning; need of regional planning.

Unit-II: Theories & Models **(Class-15, Marks-16)**

Growth pole theory by Francois Perroux, Gunnar Myrdal, A. O. Hirschman and Milton Friedman; application of these theories in Indian context; growth Centre model; models in regional planning-Christaller's central place theory, Mark Jefferson's primate city concept; G. K. Zipf's rank size rule.

Unit-III: Choosing a Planning Region **(Class-14, Marks-16)**

Ideal characteristics of a planning region; delineation of formal, functional and planning regions; agro-ecological regionalization for India

Unit-IV: Changing Concept of Development **(Class-14, Marks-16)**

Evolution of the concept of development and underdevelopment; efficiency-equity debate; concentration versus dispersal in global context

Unit-V: Measures of Development (Class-15, Marks-16)

Measures of human development according to UNDP; changing trend in the concept of development in Indian context; NITI Aayog- structure and functions.

Reading List:

1. Chand Mahesh and V K Puri, 2009, *Regional Planning in India*, Allied Publishers Pvt. Ltd., New Delhi.
2. Chandana, RC , 1994 ; *Regional Planning,* Kalyani Publishers, New Delhi.
3. Misra R P (ed), 2002 , *Regional Planning : Concept, Techniques, Policies and Case Studies,* Concept Publishing Company, New Delhi.
4. Adell, German, 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.
5. Bhatt, L.S. 1976, *Micro Level Planning in India*, KB Publication, Delhi.
6. Deshpande, C.D. 1992,; *India: A Regional Interpretation, ICSSR*, New Delhi.
7. Mohapatra A C and C R Pathak, (ed), 2003, *Economic Liberalization and Regional Disparities in India, Special Focus on the Northeast region,* Star Publishing House, Rynjah, Shillong.
8. Sundaram K V, 2000, *Urban & Regional Planning in India*, Vikas Publishing House Pvt. Ltd.
9. Tiwari P C, 1988, *Regional Development and Planning in India*, Criterion Publications, 136 Raja Garden, New Delhi.
10. Dreze, J and A. Sen, 1996; *Indian Development: Select Regional Perspectives*, Oxford: Oxford University Press.
11. Sen, Amartya, 2000; *Development as Freedom*, Random House, Toronto.
12. Raza, M., Ed. 1998; *Regional Development: Contribution to Indian Geography*. New Delhi, Heritage Publishers.
13. Rapley, John, 2007; *Understanding Development: Theory and Practice in the 3rd World*. Lynne Rienner, London.
14. Schmidt, Kallert, Einhard, 2005; *A Short Introduction to Micro Regional Planning*, Food and Agriculture Organization of the United Nations (FAO).
15. Sdyask G and P Sengupta, 1967, *Economic Regionalization of India*, Census of India.
16. HDR-UNDP
17. World Bank Report
18. I & B report
19. NITI Aayog Report

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SEMESTER-V
COURSE TITLE: REMOTE SENSING & GIS (Practical)
COURSE CODE: GGRC-502 **COURSE NO: C-12**
CREDITS: 06 **NO. OF CLASSES: 70**
MARKS: 100 **END SEMESTER: (50+30)** **INTERNAL ASSESSMENTS: 15+5**

The theory part comprising the Unit-I, II and III carries 50 marks and the practical part comprising Unit-IV carries 30 marks.

Objectives: To introduce the concept of Remote Sensing and Geographical Information system and their application in geographical studies.

COURSE CONTENT

Unit-I: Concept of Remote Sensing **(Class-14, Marks-18)**

Definition and concept of remote sensing, principles of remote Sensing, components of remote sensing and historical development of remote sensing.

Unit-II: Aerial and Satellite Remote Sensing **(Class-14, Marks-16)**

Concept of Aerial photography, the types of aerial photographs, geometry and principles of aerial photographs; concept of satellite remote sensing, artificial satellites and their sensors; interaction of EMR with atmosphere and the earth surface features

Unit-III: Concept of Geographical Information System **(Class-14, Marks-16)**

Concept of spatial and non-spatial data; definition of GIS, components of GIS; concept of layers; data structures- Vector and Raster data

Unit-IV: Remote sensing image interpretation **(Class-16, Marks-30)**

Concept of visual and digital image processing, image pre-processing, geo-referencing, radiometric and geometric correction, filtering, editing and output; concept of image classification – supervised and unsupervised classification; application of GPS.

Practical Note Book:
The students have to submit a file consisting of two exercises on aerial photos and satellite images and three simple exercises using GIS software.

Course Outcome: Skill development on the application of remote sensing and GIS.

Reading List:

1. Bhatta. B, 2011, Remote Sensing and GIS, Oxford Higher Education, New Delhi.
2. Lillesand T.M, Kiefer R. W, Chipman, L.K, Remote Sensing and Image Interpretation, Wiley India Pvt. Limited, India
3. Chang K.T. 2016, Introduction to Geographic Information System, 8th Edition, McGraw Hill Education, New York
4. Joseph. G. 2005. Fundamentals of Remote Sensing, University Press, Hyderbad, India
5. Chakraborty. D. & Sahoo. R. N. Fundamentals of Geographic Information, Viva Books, India.

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SEMESTER-VI
COURSE TITLE: EVOLUTION OF GEOGRAPHICAL THOUGHT
COURSE CODE: GGRC-601 **COURSE NO: C-13**
CREDITS: 06 **NO. OF CLASSES: 70**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objectives: To provide a base on the geographic thoughts and their evolution

COURSE CONTENT

Unit-I: Paradigms in Geography **(Class-18, Marks-20)**

Concept of paradigm, paradigms in Geography; models and their types; concept of paradigm shift; quantitative revolution and its impact in geography.

Unit-II: Classical and Medieval Geographical Thoughts **(Class-18, Marks-20)**

Geographical thoughts and ideas in ancient India; geographical thoughts and ideas of the Greek, Arab and Roman scholars; spread of geographical horizon during the medieval period and impact of the explorations.

Unit-III: Evolution of geographical thinking in the modern period **(Class-20, Marks-20)**

Contributions of the US scholars- W.M. Davis, David Harvey, Richard Hartshrone, E.C. Semple, E. Huntington; contributions of the French scholars- Vidal de-la Blache, Jean Brunhes, Lucian Febre; contributions of the German scholars- Carl Ritter, Alexender Von Humboldt, Frederich Ratzel; contribution of the British scholars- Charles Darwin, Dudley Stamp, H. Mackiender; contributions of the Indian and Chinese scholars with reference to the modern period

UNIT-IV: Debates or Dichotomies **(Class-16, Marks-20)**

Determinism and possibilism; systematic and regional approach in geography; inductive and deductive approach in geography

Course Outcome: Increase in the philosophical base of the subject geography.

Reading List:

1. Hussain, M. 1994; Evolution of Geographical Thought, Rawat Publication, New Delhi.
2. R. D. Dikshit, 1997; Geographical Thought: A Contextual History of Ideas, PHI Learning
3. Martin, Geoffrey J., 2005. "*All Possible Worlds: A History of Geographical Ideas*," *OUP Catalogue*, Oxford University Press, edition 4
4. Johnston, R.J. 1991.Geography and Geographers, 4th Edition. London: Edward Arnold.
5. Peet, R. 1998. Modern Geographical Thought. Oxford: Blackwell

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SEMESTER-VI
COURSE TITLE: PROJECT WORK ON DISASTER MANAGEMENT (Practical)
COURSE CODE: GGRC-602 **COURSE NO: C-14**
CREDITS: 06 **NO. OF CLASSES: 24**
MARKS: 100 (Report-50, Presentation and Viva-30) **INTERNAL ASSESSMENTS: 20**

Objective: To give practical knowledge on disaster management, vulnerability study, mitigation and preparedness.

Each student has to prepare a field-based project on any of the following aspects covering an area not far away from the college. The report should be prepared under the supervision of the teachers of the department. The students have to complete their field-work within 15 days. After the field –work is over, each of them has to prepare a report consisting of 10000 to 15000 words excluding diagrams, tables etc. Each student has to prepare a visual presentation of at least 15 minutes duration to be presented before a panel of teachers and to take part in viva-voce for internal evaluation. There will be continuous evaluation for internal assessment.

- Flood and River bank erosion in Assam
- Drought
- Cyclones and Hailstorms
- Earthquake.
- Landslides
- Man Induced disasters: Fire hazards, Chemical, Industrial Accidents, Deforestation

Classes will be taken for the students to give methodological base and technical support for field work, data collection, preparation of maps and diagrams and their visual presentation as well as systematic preparation of the report.

Unit-I: Objective and methodological preliminaries (Class-6, Marks-0)
Need of objective in any study, use of methods and the concept of methodology

Unit-II: Use of Field Tools (Class-10, Marks-0)
Preparation of schedule / questionnaires; collection of materials on Selected disaster from primary and secondary sources.

Unit-III: Quantitative applications on field data (Class-10, Marks-0)
Relevant methods such as Central Tendency, Dispersion, Correlation & Regression, Probability Test etc to be applied on Data-base.

Unit-IV: Cartographic presentation of field data (Class-10, Marks-0)
Preparation of statistical diagrams and thematic maps based on data collected from the field.

Unit-V: Composition of project report incorporating (Class-10, Marks-50)
Objective, methodology, analysis, finding and suggestion & conclusions along with appropriate selection of maps, graphs, and other statistical diagrams.

Seminar presentation (15 Marks)

Viva-voce (15 Marks)

Course Outcome:

Development of skill on disaster management, data processing and textual presentation of information collected from field.

Reading List:

1. Dikshit KR and J Dikshit , NE India, Land, People & Economy, Springer Publishers.
2. Gautam A, 2010, Environmental Geography, Sarada Pustak Bhawan
3. Government of India, 1977, Vulnerability Atlas of India, New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
4. Kapur A, 2010, Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
5. Kar M, Brahmaputra, Nowgong College, Nagaon, Assam.
6. Khullar, D R, 2014, India: A Comprehensive Geography, Kalyani Publisher, Ludhiana.
7. Modh S, 2010, Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi, India.
8. Rao, K L, 1976, India's Water Wealt, Oriental Longman, New Delhi.
9. Sharma J N, 1995, Axomor Nod-Nodi, (in Assamese), Asom Sahitya Sabha, Jorhat.
10. Singh R B, 2005, Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi, Chapter 1, 2 & 3.
11. Singh R B (ed), 2006, Natural and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi
12. Sinha A, 2001, Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
13. Stoltman J P et al, 2004, International Perspectives on Natural Disasters, Kluwer Academic Publications, Dordrecht.

14. Singh Jagbir, 2007, Disaster Management Future Challenges and Opportunities, Publisher- IK International Pvt. Ltd. S-25, Green Park Extensions, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com)
15. Case studies, Assam
16. Case studies, India
17. Sharma Jogesh, Asomor Nod Nodi
18. Dutta Arup. The Brahmaputra
19. Goswami Dulal C., Foods of river Brahmaputra
20. Saikia Arup J., Ecological History of Assam
21. Handique rajib, Britsh Forest Policy
22. Goswami B.N., Political Ecology of Deforestation and Tribal life

Detailed Syllabus for Core Course-Discipline Specific Electives

B.A. (Honours) Geography

SEMESTER-V
COURSE TITLE: POPULATION GEOGRAPHY
COURSE CODE: GGRD-501A **COURSE NO: DSE-01A**
CREDITS: 06 **NO. OF CLASSES: 70**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce the demographic aspects in geographical perspective, population dynamics and related issues.

UNIT-I: Introduction to population geography **(Class-14, Marks-16)**

Definition, scope and nature of population geography; introduction to the sources of population data and related information

Unit-II: Population size, distribution and population change **(Class-16, Marks-16)**

Concepts of population size, population distribution, population density and population change and their controlling factors; spatial and temporal pattern of population at global and regional level; theories relating to population change- Malthusian theory and Demographic Transition theory

Unit-III: Population dynamics **(Class-14, Marks-16)**

Components of population change- fertility, mortality and mobility of human population; determinants of population change; measures of population change- birth rate, death rate, infant mortality rate, dependency ratio.

Unit-IV: Population composition and its measures **(Class-14, Marks-16)**

Age-sex composition of population, concept of sex ratio and its measure, literacy rate; rural and urban composition of population

Unit-V: Contemporary issues in population studies (Classes-14, Marks- 16)

Concept of aging and related problems, declining sex-ratio and gender disparity; population growth and its impact on ecosystem services

Course Outcome:

To conceptualize the demographic aspects in geographical perspective, population dynamics and related issues and population theories.

Reading List:

1. Chandra R C, 2010, Geography of Population , Kalyani Publisher, New Delhi
2. Daniel P A and M F Hopkinson, 1989, The Geography of Settlement, Oliver & Boyd, London.
3. Das M (ed.), 2006, Population Resource and Development, Eastern Book House Publications, Guwahati.
4. Husain M, 2005, Human Geography, Rawat Publications, Jaipur.
5. Hassan Md. Izhar, 2005, Population Geography, Rawat Publications, Jaipur.
6. Jhimgan M L et al., 2007, Demography, Vrinda Publishers Pvt. Ltd.
7. Johnston R et al. 2008, The Dictionary of Human Geography, Blackwell Publication.
8. Jones A, 2012, Human geography : The Basis, Routledge Taylor & Francis Group, London.
9. Mahto K, 1985, Population Mobility and economic Development in Eastern India, Inter-India Publication, Delhi.
10. Negi B S, 2010, Human Geography, Kedarnath Ramnath, Meerut.
11. Ramachandran R, 2012, Urbanization and Urban System in India, Oxford India.
12. Singh L R, 2005, Fundamentals of Human Geography, Sarada Pustak Bhawan.
13. Singh R N, 2003, Geography of Settlement, Rawat Publications, Jaipur.

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B.A. (Honours) Geography

SEMESTER-V
COURSE TITLE: GEOGRAPHY OF TOURISM
COURSE CODE: GGRD-501B **COURSE NO: DSE-01B**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce various aspects related to tourism in a geographical perspective, its recent trend and growth and development across India.

COURSE CONTENT

Unit-I: The concept of tourism and its nature **(Classes-15, Marks-16)**

The concept of tourism, its nature and related issues; interrelationship between tourism, recreation and leisure; geographical parameters of tourism- location, climate, topography, economy, infrastructure and socio-cultural conditions.

Unit-II: Types of tourism **(Classes-12, Marks-16)**

Natural tourism, Cultural tourism, Medical tourism and Religious tourism

Unit-III: Recent trends in tourism **(Classes-15, Marks- 16)**

International and regional tourism, Domestic tourism, Eco tourism, Sustainable tourism and Meeting, Incentives, Conventions and Exhibitions (MICE)

Unit-IV: Impact of tourism **(Classes-15, Marks-16)**

Impact of tourism on economy, environment and society

Unit-V: Tourism in India **(Classes-15, Marks-16)**

National Tourism Policy; Case studies- Wildlife tourism in Assam, Cultural tourism in Assam, Adventure tourism in Indian context

Course outcome: Development of skill in tourism management

Reading list:

1. Bhatia A.K. : Tourism Development: Principles and Practices. Sterling Publishers, New Delhi 1996.
2. Bhatiya, A.K. International Tourism - Fundamentals and Practices, Sterling, New Delhi, (1991).
3. Chandra R.H.: Hill Tourism: Planning and Development, Kanishka Publishers, New Delhi, 1998.
4. Hunter C and Green H: Tourism and the Environment: A Sustainable Relationship,Routledge, London, 1995.
5. Inskeep. E : Tourism Planning: An Integrated and Sustainable Development Approach,Van Nostrand and Reinhold, New York, 1991.
6. Kaul R.K. Dynamics of Tourism & Recreation. Inter-India, New Delhi. (1985).
7. Kaur J. : Himalayan Pilgrimages & New Tourism Himalayan Books, New Delhi, 1985.
8. Lea J.: Tourism and Development in the Third World, Routledge, London, 1988.
9. Milton D.: Geography of World Tourism Prentice. Hall, New York, 1993.
10. Pearce D.G.: Tourism To-day: A Geographical Analysis, Harlow, Longman, 1987.
11. Robinson, H. A Geography of Tourism. Macdonald and Evans, London, 1996.
12. Sharma J.K. (ed.) : Tourism Planning and Development - A new perspective, Kanishka Publishers, New Delhi, 2000.
13. Shaw G. and Williams A.M. : Critical issues in Tourism-A Geographical Perspective,Oxford: Blackwell, 1994.
14. Sinha P. C. (ed.) : Tourism Impact Assessment, Anmol Publishers, New Delhi, 1998.
15. Theobald W. (ed.) : Global Tourism: The Next decade, Oxford, Butterworth, Heinemann,Oxford,1994.
16. 16.Voase R. : Tourism: The Human Perspective Hodder & Stoughton, London, 1995.
17. Williams A.M. and Shaw G. (eds.): Tourism and Economic Development – Western European Experiences, Belhaven, London.
18. Williams Stephen: Tourism Geography, Routledge, contemporary Human Geography,London, 1998.

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SEMESTER-V
COURSE TITLE: GEOGRAPHY OF AGRICULTURAL ACTIVITY
COURSE CODE: GGRD-502A **COURSE NO:DSE-02A**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce various aspects of agriculture, its role in the economy, determinants and controlling factors of agriculture at global perspective.

COURSE CONTENT

Unit-I: Introduction to geography of agriculture **(Classes-14, Marks-16)**
Nature and scope of agricultural geography; physical and cultural determinants of agriculture

Unit-II: Concepts of land-use and land cover **(Classes-14, Marks-16)**
Concept of land-use and land cover; identification of land categories; delineation of land-use and land cover categories; agricultural land-use model

Unit-III: Agricultural systems of the world after Whittlesey **(Classes-14, Marks-16)**
Concept of agricultural system; ecological and near ecological systems, subsistence systems, commercial and collective systems

Unit-IV: Agricultural regions of India **(Classes- 15, Marks-16)**
Agro-climatic regions, agro-ecological regions and crop-combination regions of India

Unit-V: Agricultural revolutions in India **(Classes-15, Marks-16)**
Green revolution, White revolution, Pink revolution and Pink revolution in India; Organic farming and its importance.

Course Outcome:
Introspection to the spatial pattern of agriculture, human efforts and production trend of world's cropping sector.

Reading List:

1. Dhillon S. S. 2004, Agricultural Geography, McGraw Hill Education, New York
2. SinghJ. & Dhillon S. S. 1994, Agricultural Geography, McGraw Hill Education, New York.
3. Grigg D. 1984, An Introduction of Agricultural Geography, Routledge, London
4. Husain M. 1994, Agricultural Geography, Anmol, India
5. Husain M. 1996, Systematic Agricultural Geography, Rawat Publication, India
6. Ilbery B. W. 1985, Agricultural Geography: A Social and Economic Analysis, Oxford University Press, Great Claredon Street, U.K.

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SEMESTER-V
COURSE TITLE: GEOGRAPHY OF RURAL DEVELOPMENT
COURSE CODE: GGRD-502B **COURSE NO: DSE-02B**
CREDITS: 06 **NO. OF CLASSES: 70**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce the society, the concept of social change and social development and related issues in a geographical perspective.

COURSE CONTENT

Unit-I: Definition and the concept of rural development **(Classes-14, Marks-16)**
The concept of rural development, need of rural development; Gandhian approach to rural development; inter-dependence of urban and rural development.

Unit-II: Rural economic base **(Classes-15, Marks-16)**
The Panchayati-Raj system; agriculture and allied sectors; seasonality and need for expanding non-farm activities; cooperatives and PURA

Unit-III: Area based approach to rural development **(Classes-15, Maarks-16)**
Drought prone area programmes; flood prone area programmes; Prime Minister Gram Sadak Yojna (PMGSY)

Unit-IV: Target group approach to rural development **(Classes-14, Marks-16)**
Swarn-jayanti Gram Sadak Yojna (SGSY); MNREGA: Jan Dhan Yojna; Rural connectivity

Unit-V: Provision of services **(Classes-14, Marks-16)**
Physical and socio-economic access to- elementary education, primary health-care, micro-credit and other financial services.

Course outcome: Understanding in rural development, introspection to the rural problems and to building skill in rural development

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 Publishing.

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SEMESTER-VI
COURSE TITLE: POLITICAL GEOGRAPHY
COURSE CODE: GGRD601A **COURSE NO: DSC-03A**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objectives: To introduce concepts of state, nation, boundary, shape & size of states and other political aspects in a geographical perspective.

Unit-I: Introduction to political geography **(Classes-24, Marks-20)**
Meaning, nature and scope of political geography; concepts of state, nation, concept of sovereignty and nation-state; boundaries, frontiers and territories and shape and size of states; concept of geopolitics and geostrategic regions

Unit-II: Election geography **(Classes-18, Marks-20)**
Geography of voting; geographical influence on the pattern of voting; gerrymandering

Unit-III: Geography of conflict **(Classes-16, Marks-20)**
Water sharing disputes and border disputes

Unit-IV: Politics of regional cooperation **(Classes-14, Marks-20)**
ASEAN, SAARC, EU and BRICS: Aims and objectives**.**

Course Outcome: Understanding on the impact of geographical factors on Political affairs.

Reading List:

1. Alexander, L.M.(1963): World Political Patterns, Ran McNally, Chicago.
2. Dikshit, R.D.(1996): Political Geography:A Contemporary perspectives, Tata McGraw Hill, New Delhi

3. Dikshit, R.D(1999): Political Geography:A Century of Progress, Sage, New Delhi.
4. Sukhwal, B.L.(1968): Modern Political Geography of India, Sterling Publisher, New Delhi.
5. Pounds, N.J.G.(1972): Political Geography, Mc Graw Hill, New York.
6. John,R.S.(1982): An Introduction to Political Geography, Routledge, London.
7. Moddie, A.E. Geography behind Politics, London.
8. Deshpande, C.D.(1992): India- A Regional Interpretation, N.B.Centre, New Delhi.
9. Taylor, Peter.(1985), Political Geography,Longman ,London,Prescott, JR.V.(1972):Political Geography,London, Methuen & Co.
10. Muir,R.(1976):Modern Political Geography, London , Macmillan.
11. Cohen,S.B.(1964): Geography and Politics in a Divided World , New York, Random House.
12. Hazarika.Joysankar,(1996):Geopolitics of North East India-A Strategical Study,Gyan Publishing House ,New Delhi.

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B.A. (Honours) Geography

SEMESTER-VI
COURSE TITLE: GEOGRAPHY OF HEALTH AND WELLBEING

COURSE CODE: GGRD601B **COURSE NO: DSC-03B**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce the basic concepts of health, nutrition, disease and related issues in a geographical perspective.

COURSE CONTENT

Unit-I: Perspective on health **(Classes-18, Marks-20)**

Definition of health and wellbeing, introduction to medical geography, impact of environment on health, National Health Policy

Unit-II: Exposure and health risk **(Classes-18, Marks-20)**

Socio-economic conditions and human health; air pollution, solid waste, water pollution, housing quality, occupation and sanitation; Environmental trends, urbanization, poverty and inequality

Unit-III: Health and pattern of disease **(Classes-18, Marks-20)**

Disease pattern in environmental context with special reference to India; types of diseases and their regional pattern both communicable and life style related; concept of healthy city according to WHO

Unit-IV: Climate change and human health **(Classes-18, Marks-20)**

Impact of extreme events on vector borne diseases and health;

Course outcome: Understanding in health, nutrition, disease and introspection to related issues.

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.
8. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
9. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
10. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

Detailed Syllabus for Core Course-Discipline Specific Electives
B.A. (Honours) Geography

SEMESTER-VI
COURSE TITLE: GEOGRAPHY OF HEALTH AND WELLBEING

COURSE CODE: GGRD602-A **COURSE NO: DSC-04-A**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce concepts of hydrological cycle, ocean floor configuration, coral reefs and their relevance.

COURSE CONTENT

Unit-I: The hydrological cycle **(Classes-18, Marks-20)**

Concept of hydrological cycle; distribution of Water resources; introduction to the concepts of precipitation, evaporation, interception, evapo-transpiration, infiltration, ground water recharge and surface run-off; hydrological cycle as a system

Unit-I: River basin study **(Classes-18, Marks-20)**
Concept of river basin and its characteristics; measurement of river discharge and sediment load; activities of running water; concept of flood and water level

Unit-I: Salinity of ocean water **(Classes-18, Marks-20)**
Concept of salinity of ocean water; controlling factors of salinity; spatial distribution and ecological significance of salinity

Unit-III: Marine topography, waves, tides and currents **(Classes-18, Marks-20)**
Bottom configuration of the oceans; introduction to coastal landforms; concept of tides and related activities; genesis of ocean currents, spatial distribution of ocean currents, influences of ocean currents

Unit-III: Coral formations, ocean deposits and marine resources (Classes-18, Marks-20)
Coral landforms, their formation and types; ocean deposits and their types; marine resources and their exploitation

Course Outcome: Introduction to the fundamental ideas on hydrological cycle, salinity of oceans and the coastal geomorphology.

Reading List:

1. Singh S. 2009. Oceanography, Prayag Pustak Bhawan, India
2. Siddhartha. K. 2016. Oceanography- A Brief Introduction, Kitab Mahal, India
3. Das M. M. & Saikia. M. D. 2009, Hydrology, Prentice Hall India Learning Private Limited, India
4. Davie T. 2003, Fundamentals of Hydrology, Routledge, London
5. P Jaya Remi Reddy P. J. R. 2016, A Text Book of Hydrology, Usp Publisher, New York
6. Ward R. C. & Robinson M. 2011, Principles of Hydrology, McGraw Hill Education, New York
7. Croce N. 2016, Oceanography & Hydrology: The study Of Science, Rosen Publishing Group, New York

Detailed Syllabus for Core Course-Discipline Specific Electives
B.A. (Honours) Geography

SEMESTER-VI
COURSE TITLE: SOCIAL GEOGRAPHY
COURSE CODE: GGRD602-B **COURSE NO: DSC-04-B**
CREDITS: 06 **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: 80** **INTERNAL ASSESSMENTS: 20**

Objective: To introduce the social aspects in a geographical perspective and the concept and process of social change.

COURSE CONTENT

Unit-I: Concept of Social Geography (Classes-18, Marks-20)

Concept and scope of social geography; concept of space in social geography; concept of urbanization, westernization, modernization and socio-cultural changes

Unit-II: Patterns and process of social changes in India (Classes-18, Marks-20)

Technological and behavioral changes in rural and urban migration; caste, class, religion, gender and their spatial distribution

Unit-III: Geography of welfare and wellbeing (Classes-18, Marks-20)

Concept and components- health care, housing and education; concept of Gross National Happiness; maternal and child health indicators

Unit-IV: Social Geographies of Inclusion and Exclusion (Classes-18, Marks-20)

Slums, gated communities, communal conflicts, crimes, juvenile delinquents and marginalized communities

Course outcome: Understanding the society, social issues, human welfare and related issues

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.

GENERIC ELECTIVE

Detailed Syllabus for Generic Electives
B.A. (Honours) in subjects other than Geography

SEMESTER-I
COURSE TITLE: DISASTER MANAGEMENT
COURSE CODE: GGRG-101 **COURSE NO: GE-101**
CREDITS: 06 (theory-04, Practical-02) **NO. OF CLASSES : 72**
MARKS: 100 **END SEMESTER: (50+30)** **INTERNAL ASSESSMENTS: (15+5)**

This paper carries 50 marks for project report and 30 marks for practical. Internal assessment for the theory and the practical part carry 15 and 5 marks respectively.

Objectives: To give theoretical as well as practical knowledge about disaster and hazards, their mitigation, preparedness and management.

COURSE CONTENT

Unit-I: Introduction to disaster and hazard **(Classes-18, Marks-15)**
Definition and concepts of hazards and disasters; risk and vulnerability of disasters; classification of disasters.

Unit-II: Disasters in India (causes and impact) **(Classes-18, Marks-15)**
Flood, landslide and drought, earthquake, tsunami and cyclone; man-made disasters

Unit-III: Mitigation and response to disasters **(Classes-18, Marks-20)**
Mitigation and Preparedness, NDMA and NIDM; indigenous knowledge and community-based disaster management; during and post-disasters do's and don'ts; act of disaster management

PRACTICAL

Unit-IV: Preparation of map showing distribution of disasters (Classes-18, Marks-20)

Flood affected areas of India, drought affected areas of India, cyclone affected areas of India, the earthquake belts of the world, the tsunami belts of the world

Unit-V: Workshop cum demonstration (Classes-18, Marks-10)

Workshop cum demonstration in collaboration with National Institute of Disaster Management (NIDM) or Assam State Disaster Management Association (ASDMA) or District Disaster Management Association (DDMA). Each student has to prepare a brief report on such workshop/demonstration.

Selected Readings:

1. Khullar, D R, 2014, India: A Comprehensive Geography, Kalyani Publisher, Ludhiana.
2. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
3. Oxford India, 2015, Oxford School Atlas (44th ed.), Oxford University Press,
4. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.
5. Singh S, 2009, Environmental Geography, Prayag Pustak Bhawan, Allahabad.
6. Vadivelu S et al, 1999, Soil Map of Assam, NBSS & LUP (ICAR).
7. Vadivelu S et al, 2002, Soil Map of Northeast India, NBSS & LUP (ICAR).

Detailed Syllabus for Generic Electives
B.A. (Honours) in subjects other than Geography

SEMESTER-II
COURSE TITLE: REGIONAL DEVELOPMENT
COURSE CODE: GGRG-201 COURSE NO: GE-201
CREDITS: 06 (theory-04, Practical-02) NO. OF CLASSES : 72
MARKS: 100 END SEMESTER: (50+30) INTERNAL ASSESSMENTS: (15+5)

This paper carries 50 marks for project report and 30 marks for practical. Internal assessment for the theory and the practical part carry 15 and 5 marks respectively.

Objectives: To introduce concepts of region, regional development and disparity, the types of region and the significance of regionalization.

COURSE CONTENT

THEORY

Unit-I: The concept of region (Classes-18, Marks-15)

Definition and concept of region, evolution of the concept of region, types of region- formal, functional and planning regions; regional imbalances and problems of functional regions

Unit-II: Pre-requisites for planning and development (Classes-18, Marks-15)

Need of regional planning and development; choice of a region for planning; characteristics of an ideal planning region

Unit-III: Regional planning and development (Classes-18, Marks-20)

Strategies/models for regional planning; Growth Pole model of Perroux; Growth Centre model in Indian context; Village Cluster; Problem Regions & regional planning; backward regions and regional plans- special area development plans in India; DVC- the success story and the failures, NE region of India and role of NEC

PRACTICAL

Unit-IV: Preparation of disparity maps (Classes-18, Marks-20)

Preparation of disparity map to show imbalances in India; delineation of planning region based on economic, social and physical criteria along with the scheme adopted by Town & Country Planning Organization; Agro-Ecological Zones of India

Unit-V: Problem regions (Classes-18, Marks-10)

Hill area mapping and developmental programmes; tribal area mapping & developmental programmes

Selected Readings:

1. Chand Mahesh and V K Puri, 2009, Regional Planning in India, Allied Publishers Pvt. Ltd., New Delhi.
2. Chandana, RC , 1994 ; Regional Planning, Kalyani Publishers, New Delhi.
3. Misra R P (ed), 2002 , Regional Planning : Concept, Techniques, Policies and Case Studies, Concept Publishing Company, New Delhi.
4. Adell, German, 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.
5. Bhatt, L.S. 1976, Micro Level Planning in India, KB Publication, Delhi.
6. Deshpande, C.D. 1992,; India: A Regional Interpretation, ICSSR, New Delhi.
7. Mohapatra A C and C R Pathak, (ed), 2003, Economic Liberalization and Regional Disparities in India, Special Focus on the Northeast region, Star Publishing House, Rynjah, Shillong.
8. Sundaram K V, 2000, Urban & Regional Planning in India, Vikas Publishing House Pvt. Ltd.
9. Tiwari P C, 1988, Regional Development and Planning in India, Criterion Publications, 136 Raja Garden, New Delhi.
10. Dreze, J and A. Sen, 1996; Indian Development: Select Regional Perspectives, Oxford: Oxford University Press.
11. Sen, Amartya, 2000; Development as Freedom, Random House, Toronto.
12. Raza, M., Ed. 1998; Regional Development: Contribution to Indian Geography. New Delhi, Heritage Publishers.
13. Rapley, John, 2007; Understanding Development: Theory and Practice in the 3rd World. Lynne Rienner, London.
14. Schmidt, Kallert, Einhard, 2005; A Short Introduction to Micro Regional Planning, Food and Agriculture Organization of the United Nations (FAO).
15. Sdyask G and P Sengupta, 1967, Economic Regionalization of India, Census of India.
16. Cuff J D and M T Mattson, 1982, Thematic Maps: Their Design and Production, Methuen Young Books
17. Dent B D et al, 2008, Cartography: Thematic Map Design, Mcgraw-Hill Higher Education.
18. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
19. Singh Jasbir and S S Dhillon, 1994, Agricultural Geography, Tata McGraw-Hill's.
20. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.

Detailed Syllabus for Generic Electives
B.A. (Honours) in subjects other than Geography

SEMESTER-III
COURSE TITLE: CLIMATE CHANGE: VULNERABILITY AND ADAPTATION
COURSE CODE: GGRG-301 **COURSE NO: GE-301**
CREDITS: 06 (theory-04, Practical-02) **NO. OF CLASSES : 72**
MARKS: 100 **END SEMESTER: (50+30)** **INTERNAL ASSESSMENTS: (15+5)**

This paper carries 50 marks for project report and 30 marks for practical. Internal assessment for the theory and the practical part carry 15 and 5 marks respectively.

Objectives: To familiarize the students with the concept of climate change and related aspects keeping in view the vulnerability and human adaptation.

COURSE CONTENT

THEORY

Unit-I: The concept of climate change **(Classes-10, Marks-10)**
Understanding climate change, the concept of green-house effect and global warming

Unit-II: Climate change and vulnerability **(Classes-16, Marks-15)**

The concept of vulnerability, physical vulnerability, economic vulnerability and social vulnerability

Unit-III: Impact of climate change on selected aspects **(Classes-16, Marks-15)**
Impact of climate change on water resource and agriculture, flora and fauna and human health

Unit-IV: Adaptation and migration **(Classes-10, Marks-10)**
Climate Change & Global Initiative with Particular Reference to South India

PRACTICAL

Unit-V: Weather symbols and study on Indian daily weather map. (Classes-10, Marks-15)
Introduction to weather maps and weather symbols; interpretation of Indian daily weather Maps (summer and winter seasons)

Unit-VI: Representation of climatic data (Classes-10, Marks-15)
Preparation and interpretation of Hythergraph, Climograph and Ergographs; construction of rainfall variability map.

Selected Readings:

1. IPCC. (2007) Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group 11 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
2. IPCC (2014) Climate Change 2014: Impacts. Adaptation and Vulnerability. Pari 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, .1. 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: GE04: 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 I. Advances in Geographical and Environmental Studies, Springer
8. S. Sen Roy. S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & 1BH Pub., New Delhi.
9. Misra R P and A Ramesh, 1989, Fundamentals of Cartography, Concept Publishing Company, New Delhi.
10. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
11. Sarkar A, 2015, Practical Geography, Orient Black Swan Pvt. Ltd, New Delhi.
12. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.
13. Singh, M, Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume I. Advances in Geographical and Environmental Studies, Springer
14. S. Sen, Roy. S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & 1BH Pub., New Delhi

Detailed Syllabus for Generic Electives
B.A. (Honours) in subjects other than Geography

SEMESTER-IV
COURSE TITLE: GEOGRAPHY OF SUSTAINABLE DEVELOPMENT
COURSE CODE: GGRG-401 **COURSE NO: GE-401**
CREDITS: 06 (theory-04, Practical-02) **NO. OF CLASSES: 72**
MARKS: 100 **END SEMESTER: (50+30)** **INTERNAL ASSESSMENTS: (15+5)**

This paper carries 50 marks for project report and 30 marks for practical. Internal assessment for the theory and the practical part carry 15 and 5 marks respectively.

Objectives: To familiarize the students with the concept of sustainable development in a geographical perspective

COURSE CONTENT

THEORY

Unit-I: The concept of sustainable development **(Classes-10, Marks-10)**
Concept and definition of sustainable development, limitations and historical background.

Unit-II: Sustainable regional development **(Classes-16, Marks-15)**
Need of sustainable regional development; examples sustainable regional development in different ecosystems- tropical rainforest, temperate grassland, hilltops & plateaus, fertile river vallies.

Unit-III: The concept of inclusive development **(Classes-16, Marks-15)**
The concept of inclusive development with reference to health and climate change; the role of higher education in sustainable development

Unit-IV: Sustainable development policies and programmes **(Classes-10, Marks-10)**
The proposal for SDGs at Rio Summit; illustrative SDGs goal based development

PRACTICAL

Unit-V: Natural lay-out study on sustainable development (Classes-10, Marks-10)
Concept & definition; limitations and historical background.

Unit-VI: Cultural Background of Development (Classes-10, Marks-20)
Preparation of land-use map; construction of maps showing density and growth of population

Selected Readings:

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 1: 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. Martinez-Alier, Joan et a! (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 I-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.
10. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & 1BH Pub., New Delhi.
11. Misra R P and A Ramesh, 1989, Fundamentals of Cartography, Concept Publishing Company, New Delhi.
12. Monkhouse F J and H R Wilkinson, 1973, Maps and Diagrams, Methuen, London.
13. Sarkar A, 2015, Practical Geography, Orient Black Swan Pvt. Ltd, New Delhi.
14. Singh R L and R P B Singh, 2013, Elements of Practical Geography, Kalyani Publishers, Ludhiana.
15. Singh, M, Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume I. Advances in Geographical and Environmental Studies, Springer
16. S. Sen, Roy. S. and Singh, R.B. (2002) Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & 1BH Pub., New Delhi.

SKILL ENHANCEMENT COURSES

Detailed Syllabus for Skill Enhancement Course in Geography
For students having Honours in any subject

SEMESTER-III
COURSE TITLE: REMOTE SENSING
COURSE CODE: GGRS-301 **COURSE NO: SEC-01**
CREDITS: 02 **NO. OF CLASSES: 48**
MARKS: 50 **END SEMESTER: (25+15)** **INTERNAL ASSESSMENTS: 10**

This paper carries 25 marks for project report and 15 marks for presentation and viva-voce. Internal assessment carries 10 marks.

Objectives: To familiarize and give practical knowledge base on the modern cartographic technique of remote sensing.

COURSE CONTENT

Unit-I: The concept of remote sensing **(Classes-8, Marks--)**
Definition and concept of remote sensing, principles of remote sensing, components of remote sensing and their function; concept of photogrammetry, determination of scale of aerial photographs.

Unit-II: Satellite remote sensing **(Classes-8, Marks--)**
Interaction of electromagnetic radiation with atmosphere and the earth surface features; concept of resolution; artificial satellites- Landsat and IRS; space borne sensors and their function

Unit-III: Manual and digital image processing **(Classes-12, Marks--)**
Image pre-processing- radiometric and geometric correction; image enhancement or filtering; supervised and un-supervised classification.

Unit-IV: Satellite image interpretation **(Classes-10, Marks--)**
Interpretation of two satellite images of different scale and resolution

Unit-V: Application of Remote Sensing **(Classes-10, Marks--)**

Preparation of land use and land cover map covering a small area.

PROJECT FILE

Each student has to submit a project file consisting of five exercises on the above aspects. He/she has to display the exercises or make a visual presentation of the works before a panel of examiners and sit for a viva-voce.

Selected Readings:

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. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
4. Joseph, G, 2005: Fundamentals oj Remote Sensing. United Press India.
5. Lillesand, T. M,, Kiefer R, W, and Chipman J, W,, 2004: Remote Sensing and Image Interpretation, Wiley, (Wiley Student Edition).
6. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
7. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
8. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
9. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford.

Detailed Syllabus for Skill Enhancement Course in Geography
For students having Honours in any subject

SEMESTER-IV

COURSE TITLE: GEOGRAPHICAL INFORMATION SYSTEM (GIS)

COURSE CODE: GGRS-401 **COURSE NO: SEC-02**

CREDITS: 02 **NO. OF CLASSES: 48**

MARKS: 50 **END SEMESTER: (25+15)** **INTERNAL ASSESSMENTS: 10**

This paper carries 25 marks for project report and 15 marks for presentation and viva-voce.

Objectives: To familiarize and give practical knowledge base on handling of geographical date and preparation of maps using GIS software.

COURSE CONTENT

Unit-I: Introduction to GIS **(Classes-8, Marks--)**

Definition, components and their function

Unit-II: Introduction to Global Positioning System (GPS) **(Classes-8, Marks--)**

Principles and uses of GPS, Differential Global Positioning System (DGPS)

Unit-III: GIS data structure **(Classes-6, Marks--)**

Types of geographical data- spatial and non-spatial data; concept of raster and vector data structures

Unit-IV: GIS data analysis **(Classes-14, Marks--)**

Data input; geo-referencing; editing; output and query; overlays

UNIT-V: Application of GIS **(Classes-12, Marks--)**

Application of GIS in land-use mapping; urban sprawl analysis; forests monitoring.

PROJECT FILE

Each student has to submit a project file consisting of five exercises using GIS software on the above aspects. He/she has to display the exercises or make a visual presentation of the works before a panel of examiners and sit for a viva-voce.

Selected Readings:

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. Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.
4. Joseph, G, 2005: Fundamentals oj Remote Sensing. United Press India.
5. Lillesand T. M,, Kiefer R, W, and Chipman J, W,, 2004: Remote Sensing and Image Interpretation, Wiley, (Wiley Student Edition).
6. Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London
7. Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.
8. Nag, P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
9. Singh, R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford.