

The University of Burdwan



Syllabus for B.A. / B.Sc. (Hons.)

In

Geography

under

Choice Based Credit System

w.e.f. 2017-2018 onward

**COURSE STRUCTURE UNDER CHOICE BASED CREDIT SYSTEM FOR BA/B.Sc. HONOURS IN
GEOGRAPHY**

Semester-wise course structure

YEAR	SEMESTER	CORE COURSE (CC) (14)	ABILITY ENHANCEMENT COURSE (AECC) (2)	SKILL ENHANCEMENT COURSE (SEC) (2)	DISCIPLINE SPECIFIC ELECTIVE (DSE) (4)	GENERIC ELECTIVE (GE) (4)
FIRST YEAR	I	CC-1. GEOTECTONICS AND GEOMORPHOLOGY CC-2. CARTOGRAPHIC TECHNIQUES AND GEOLOGICAL MAP STUDY	ENVIRONMENTAL STUDIES			GE-1 (Any discipline other than Geography)
	II	CC-3. HUMAN GEOGRAPHY CC-4. CARTOGRAMS, SURVEY AND THEMATIC MAPPING	COMMUNICATIVE ENGLISH/MIL			GE-2 (Any discipline other than Geography)
SECOND YEAR	III	CC-5. CLIMATOLOGY CC-6. STATISTICAL METHODS IN GEOGRAPHY CC-7. GEOGRAPHY OF INDIA		SEC-1. COMPUTER BASICS AND COMPUTER APPLICATIONS OR REMOTE SENSING		GE-3 (Any discipline other than Geography)
	IV	CC-8. REGIONAL PLANNING AND DEVELOPMENT CC-9. ECONOMIC GEOGRAPHY CC-10. ENVIRONMENTAL GEOGRAPHY		SEC-II ADVANCED SPATIAL STATISTICAL TECHNIQUES OR FIELD WORK		GE-4 (Any discipline other than Geography)
THIRD YEAR	V	CC-11. RESEARCH METHODOLOGY AND FIELD WORK CC-12. REMOTE SENSING AND GIS			DSE – 1 URBAN GEOGRAPHY Or CULTURAL AND SETTLEMENT GEOGRAPHY DSE – 2 POPULATION GEOGRAPHY Or SOCIAL GEOGRAPHY	
	VI	CC-13. EVOLUTION OF GEOGRAPHICAL THOUGHTS CC-14. DISASTER MANAGEMENT			DSE – 3 FLUVIAL GEOMORPHOLOGY Or RESOURCE GEOGRAPHY DSE – 4 SOIL AND BIO GEOGRAPHY Or AGRICULTURAL GEOGRAPHY	

COURSE STRUCTURE UNDER CHOICE BASED CREDIT SYSTEM FOR B.A/B.Sc. HONOURS IN

GEOGRAPHY

Semester-wise distribution of Credits and marks

SEMESTER	COURSE OPTED	COURSE NAME	CREDIT	MARKS			NO. OF HOURS L-T-P (PER WEEK)
				IA	ESE	TOTAL	
I	ABILITY ENHANCEMENT: COMPULSORY COURSE - I	ENVIRONMENTAL STUDIES	4		100	100	
	CORE COURSE (CC 1)	GEOTECTONICS AND GEOMORPHOLOGY	6	15	60	75	5-1-0
	CORE COURSE (CC2)	CARTOGRAPHIC TECHNIQUES AND GEOLOGICAL MAP STUDY	4	15	40	75	4-0-0
			2		20		0-0-4
	GENERIC ELECTIVE (GE1)	ANY DISCIPLINE OTHER THAN GEOGRAPHY	6	15	60	75	5-1-0
TOTAL			22		325		
II	ABILITY ENHANCEMENT: COMPULSORY COURSE - II	COMMUNICATIVE ENGLISH/ MIL	2		50	50	
	CORE COURSE (CC3)	HUMAN GEOGRAPHY	6	15	60	75	5-1-0
	CORE COURSE (CC4)	CARTOGRAMS, SURVEY AND THEMATIC MAPPING	4	15	40	75	4-0-0
			2		20		0-0-4
	GENERIC ELECTIVE (GE2)	ANY DISCIPLINE OTHER THAN GEOGRAPHY	6	15	60	75	5-1-0
TOTAL			20		275		
III	CORE COURSE (CC5)	CLIMATOLOGY	6	15	60	75	5-1-0
	CORE COURSE (CC6)	STATISTICAL METHODS IN GEOGRAPHY	4	15	40	75	4-0-0
			2		20		0-0-4
	CORE COURSE (CC7)	GEOGRAPHY OF INDIA	6	15	60	75	5-1-0
	SKILL ENHANCEMENT COURSE (SEC1)	SEC- 1(COMPUTER BASICS AND COMPUTER APPLICATIONS OR REMOTE SENSING)	2	10	40	50	0-0-4
	GENERIC ELECTIVE (GE3)	ANY DISCIPLINE OTHER THAN GEOGRAPHY	6	15	60	75	5-1-0
TOTAL			26		350		
IV	CORE COURSE (CC8)	REGIONAL PLANNING AND DEVELOPMENT	6	15	60	75	5-1-0
	CORE COURSE (CC9)	ECONOMIC GEOGRAPHY	6	15	60	75	5-1-0
	CORE COURSE (CC10)	ENVIRONMENTAL GEOGRAPHY	4	15	40	75	4-0-0
			2		20		0-0-4
	SKILL ENHANCEMENT COURSE (SEC2)	SEC- 2 ADVANCED SPATIAL STATISTICAL TECHNIQUES OR FIELD WORK	2	10	40	50	0-0-4
	GENERIC ELECTIVE (GE4)	ANY DISCIPLINE OTHER THAN GEOGRAPHY	6	15	60	75	5-1-0
TOTAL			26		350		

SEMESTER	COURSE OPTED	COURSE NAME	CREDIT	MARKS			NO. OF HOURS L-T-P (PER WEEK)
				IA	ESE	TOTAL	
V	CORE COURSE (CC11)	RESEARCH METHODOLOGY AND FIELD WORK	4	15	40	75	4-0-0
			2		20		0-0-4
	CORE COURSE (CC12)	REMOTE SENSING AND GIS	4	15	40	75	4-0-0
			2		20		0-0-4
	DISCIPLINE SPECIFIC ELECTIVE (DSE1)	DSE – 1 URBAN GEOGRAPHY OR CULTURAL AND SETTLEMENT GEOGRAPHY	6	15	60	75	5-1-0
	DISCIPLINE SPECIFIC ELECTIVE(DSE2)	POPULATION GEOGRAPHY OR SOCIAL GEOGRAPHY	6	15	60	75	5-1-0
TOTAL			24		300		
VI	CORE COURSE (CC13)	EVOLUTION OF GEOGRAPHICAL THOUGHTS	6	15	60	75	5-1-0
	CORE COURSE (CC14)	DISASTER MANAGEMENT	4	15	40	75	4-0-0
			2		20		0-0-4
	DISCIPLINE SPECIFIC ELECTIVE(DSE3)	DSE – 3 FLUVIAL GEOMORPHOLOGY OR RESOURCE GEOGRAPHY	6	15	60	75	5-1-0
	DISCIPLINE SPECIFIC ELECTIVE(DSE4)	DSE – 4 SOIL AND BIO GEOGRAPHY OR AGRICULTURAL GEOGRAPHY	6	15	60	75	5-1-0
	TOTAL			24		300	
TOTAL OF ALL SEMESTERS			142		1900		

*L-T-P = LECTURE-TUTORIAL-PRACTICAL

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

CC1 - Geotectonics and Geomorphology

6 Credits

Unit 1: Geotectonics

1. Earth's tectonic and structural evolution with reference to geological time scale
2. Earth's interior with special reference to seismology.
3. Concept of Isostasy: Theories of Airy and Pratt
4. Plate Tectonics: Processes at constructive, conservative, destructive boundaries and hotspots: resulting landforms

Unit 2: Geomorphology

1. Degradational processes: Weathering, mass wasting and resultant landforms
2. Models of landscape evolution: Views of Davis, Penck, and Hack
3. Slope Development: Concept of Wood
4. Development of river network and landforms on uniclinal and folded structures
5. Types of rocks, mineralogical composition of igneous rocks; Landforms on igneous rocks with special reference to Granite and Basalt
6. Karst landforms: Surface and sub-surface
7. Glacial and fluvio-glacial processes and landforms
8. Aeolian and fluvio-aeolian processes and landforms.

Reference Books

- Bloom A. L., 2001: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi
- Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
- Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
- Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
- Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
- Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
- Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
- Thornbury W. D., 1969: Principles of Geomorphology, Wiley.

CC2 (Theory) – Cartographic Techniques and Geological map study 4 Credits

1. Maps: Classification and Types. Components of a Map
2. Concept of Scales: Plain, Comparative, Diagonal and Vernier
3. Coordinate Systems: Polar and Rectangular. Concept of Geoid and Spheroid. Map Projections: Classification, Properties and Uses. Concept and Significance of UTM Projection
4. Concept of Generating Globe, Grids: Angular and Linear Systems of Measurement
5. Survey of India Topographical Maps: Reference scheme of Old and Open series
6. Delineation of Drainage Basin from Survey of India Topographical Map. Concept of Relief, Slope and Stream Order.
7. Types of rocks and minerals. Characteristics of Granite, Basalt, Dolerite, Pegmatite, Gneiss, Shale, Sandstone, Slate, Marble, Quartzite, Quartz, Feldspar, Mica, Limestone, Calcite, Bauxite, Magnetite, Hematite, Galena
8. Concept of Bedding Plane, Unconformity and Non-conformity, thickness of Bed, Dip, Throw, Hade, heave

CC2 (Practical) – Cartographic Techniques and Geological map study 2 Credits

1. Construction of Scales: Plain, Comparative, Diagonal and Vernier
2. Construction of Projections: Polar Zenithal Stereographic, Simple Conic with two Standard Parallels, Bonne's and Mercator's
3. Construction and Interpretation of Relief Profiles (Superimposed, Projected and Composite), Preparation of Relative Relief Map, Slope map (Wentworth), and Stream Ordering (Strahler) on a Drainage Basin.
4. Geological Map (Problems related to Horizontal, Uniclinal, Folded and Faulted structure); Drawing of Geological section and Interpretation of the Map.

*A Project File, comprising one exercise each is to be submitted.

Reference Books

Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi
Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York
Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
Sarkar, A. 2015: Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

CC3 (Theory) – Human Geography

6 Credits

Unit 1: Nature and Principles

1. Nature, scope and recent trends of Human Geography
2. Evolution of humans, concept of race and ethnicity; Major Racial Groups of the world
3. Space, society and cultural regions (language and religion)
4. Concept of Culture, Cultural Diffusion, Convergence, Cultural Realms of the world

Unit 2: Society, Demography and Ekistics

1. Evolution of human societies: Hunting and gathering, Pastoral nomadism, Subsistence farming, Industrial and urban societies
2. Human - environment relations with special reference to Arctic and hot desert regions
3. Population growth and distribution, population composition; demographic transition model
4. Population–Resource regions
5. Human, population and environment relations with special reference to development–environmentconflict
6. Social morphology and rural house types in India
7. Types and patterns of rural settlements
8. Functional Classification of urban settlements

Reference Books

Bergman, E.F (1995): Human Geography-Culture, Connections and Landscape, Prentice Hall, New Jersey

Chisholm. (1975): Human Geography, Penguin Books, Hermondsworth.

Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.

Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.

Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.

Pearce D. (1995): Tourism Today: A Geographical Analysis, 2nd edition, Longman Scientific & Technical, London

Pickering K. and Owen A. A. (1997): An Introduction to Global Environmental Issues, 2nd edition Rutledge, London.

Raw, M. (1986): Understanding Human Geography: A Practical Approach, Bell and Hyman. London

Rubenstein, J.M. (2002), The Cultural Landscape, 7th edition, Prentice Hall, Englewood Cliffs

Smith D M (1982): Human Geography: A Welfare Approach, Edward Arnold, London

CC4 (Theory) – Cartograms, Survey and Thematic Mapping**4 Credits**

1. Concepts of Cartograms and Thematic Maps
2. Concept and utility of Isopleths and Choropleth,
3. Concept, utility, and interpretation of :Climograph, Hythergraph and Ergograph
4. Preparation and interpretation of demographic charts and diagrams (Age-Sex Pyramid)
5. Concepts of Bearing: magnetic and true, whole-circle and reduced
6. Basic concepts of surveying and survey equipments: Abneys Level, Clinometer
7. Basic concepts of surveying and survey equipments: Prismatic Compass, Dumpy Level, Transit Theodolite
8. Interpretation of Land use and land cover maps

CC4 (Practical) – Cartograms, Survey and Thematic Mapping**2 Credits**

1. Diagrammatic representation of data: Star and Age-sex pyramid diagram, pie diagram
2. Representation of data on map by proportional circles, dots and spheres, isolines and Choropleth method.
3. Contouring by Dumpy Level and Prismatic Compass
4. Determination of Height of objects using Transit Theodolite (Accessible and Inaccessible bases)

*A Project File, comprising one exercise each is to be submitted

Reference Books

- Cuff J. D. and Mattson M. T., 1982: Thematic Maps: Their Design and Production, Methuen Young Books
- Dent B. D., Torguson J. S., and Holder T. W., 2008: Cartography: Thematic Map Design (6th Edition), Mcgraw-Hill Higher Education
- Gupta K. K. and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
- Kraak M.-J. and Ormeling F., 2003: Cartography: Visualization of Geo-Spatial Data, Prentice-Hall.
- Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
- Slocum T. A., McMaster R. B. and Kessler F. C., 2008: Thematic Cartography and Geovisualization (3rd Edition), Prentice Hall.
- Tyner J. A., 2010: Principles of Map Design, The Guilford Press.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan PrivateLtd., New Delhi

Unit 1: Elements of the Atmosphere

1. Nature, composition and layering of the atmosphere,
2. Insolation: controlling factors. Heat budget of the atmosphere.
3. Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences.
4. Greenhouse effect and importance of ozone layer

Unit 2: Atmospheric Phenomena, Climate Change and Climatic Classification

1. Condensation: Processes and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation.
2. Air mass: Typology, origin, characteristics and modification.
3. Fronts: warm and cold; frontogenesis and frontolysis.
4. Weather: stability and instability; barotropic and baroclinic conditions.
5. Circulation in the atmosphere: Planetary winds, jet stream and monsoons
6. Tropical and mid-latitude cyclones
7. Evidences and causes of climate change
8. Climatic classification after Köppen, Thornthwaite (1948)

Reference Books

- Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
- Barry R. G. and Chorley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
- Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
- Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
- Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
- Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw

CC 6 (Theory) – Statistical Methods in Geography

4 Credits

Unit 1

1. Importance and significance of Statistics in Geography. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio), sources of data
2. Collection of data and formation of statistical tables
3. Sampling: Need, types, and significance and methods of random sampling
4. Distribution: frequency, cumulative frequency

Unit 2

1. Central tendency: Mean, median, mode, partition values
2. Measures of dispersion range, mean deviation, standard deviation, coefficient of variation
3. Association and correlation: Rank correlation, product moment correlation
4. Linear Regression and time series analysis

CC 6 (Practical) – Statistical Methods in Geography

2 Credits

1. Construction of data matrix with each row representing an aerial unit (districts / blocks / mouzas / towns) and corresponding columns of relevant attributes.
2. Based on the above, a frequency table, measures of central tendency and dispersion would be computed and interpreted.
3. Histograms and frequency curve would be prepared on the dataset.
4. Based on of the sample set and using two relevant attributes, a scatter diagram and regression line would be plotted and residual from regression would be mapped with a short interpretation.

*A Project File, comprising one exercise each is to be submitted

Reference Books

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

Unit 1: Geography of India

1. Geology and physiographic divisions
2. Climate, soil and vegetation: Characteristics and classification
3. Population: Distribution, growth, structure and policy
4. Distribution of population by race, caste, religion, language, tribes
5. Agricultural regions, Green revolution and its consequences
6. Mineral and power resources distribution and utilisation of iron ore, coal, petroleum
7. Industrial development since independence.
8. Regionalisation of India: Views of Spate and Bhatt.

Unit 2: Geography of West Bengal

1. Physical perspectives: Physiographic divisions, forest and water resources
2. Population: Growth, distribution and human development
3. Resources: Mining, agriculture and industries
4. Regional Development: Darjeeling Hills and Sundarban

Reference Books

- Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
- Johnson, B. L. C., ed. 2001. Geographical Dictionary of India. Vision Books, New Delhi.
- Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Perspective. Vol. 3 – Indian Perspective.
- Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India
- Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
- Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
- Singh, Jagdish 2003: India - A Comprehensive & Systematic Geography, GyanodayaPrakashan, Gorakhpur.
- Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
- Tirtha, Ranjit 2002: Geography of India, RawatPubls., Jaipur & New Delhi
- Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
- Tiwari, R.C. (2007) Geography of India. PrayagPustakBhawan, Allahabad
- Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

Generic Elective

For Students other than Geography Honours

GE 1. Disaster Management

1. Disasters: Definition and Concepts: Hazards, Disasters; Risk and Vulnerability;
2. Types or Classification of Hazards
3. Disasters in India: (a) Flood: Causes, Impact, Distribution
4. Disasters in India: Landslide: Causes, Impact, Distribution
5. Disasters in India: Drought: Causes, Impact, Distribution
6. Natural calamity: Earthquake: Impact, Prevention and Mitigation
7. Manmade disasters: Nuclear Radiation: Causes, Impact, Distribution
8. Manmade disasters: Bhopal Gas Tragedy.
9. Disaster Mitigation and Prevention: Concepts and Measures.
10. Measures of Mitigation and Prevention of Flood hazards and Disasters
11. Measures of Mitigation and Prevention of Drought hazards and Disasters
12. NDMA , NIDM

Reference Books

Government of India.(1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.

Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.

Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.

Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3

Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.

Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.

Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.

1. Scope and Nature: Concepts and Issues, Tourism, Recreation and Leisure Inter-Relations; Geographical Parameters of Tourism by Robinson.
2. Types of Tourism: Cultural Tourism, Pilgrimage,
3. Types of Tourism: Adventure Tourism, Medical Tourism
4. Factors influencing tourism: historical, natural, socio-cultural and economic
5. Impact of tourism on physical environment
6. Impact of tourism on economy
7. Impact of tourism on society
8. Recent Trends of Tourism: International and Regional; Domestic (India);
9. Recent Trends of Tourism: Ecotourism, Sustainable Tourism, Meeting Incentives Conventions and Exhibitions (MICE)
10. Tourist places and circuits in India
11. Tourism in India: Case Studies of Coastal Areas
12. Promotion of Tourism - National Tourism Policy

Reference Books

Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.

Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation – Environment, Place and Space, Routledge, London.

Kamra, K. K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practise, Kanishka Publishers, Pune.

Page, S. J. (2011) Tourism Management: An Introduction, Butterworth-Heinemann- USA. Chapter 2.

Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage Festivals Management: An International perspective by, CABI, Cambridge, USA, www.cabi.org.

Tourism Recreation and Research Journal, Center for Tourism Research & Development, Lucknow

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).

GE 2 – Geospatial Technology

6 Credits

1. Historical development of geospatial technology
2. Concepts of spheroid, ellipsoid and projection systems. Significance of WGS 84 and UTM
3. Data types and structures in spatial technology
4. Remote Sensing: concepts and stages
5. Classification of Remote Sensing platforms, sensors and resolution- IRS (Resourcesat and Cartosat) and Landsat systems.
6. Principles of georeferencing of maps and images
7. Techniques of Image enhancement
8. Image classification and preparation of thematic maps
9. Components of GIS, Source of GIS data and creation of layers
10. GPS: Principles of satellite positioning and navigation
11. Principles of preparing DEMs
12. Integration of different components of spatial technology

Reference Books

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>

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>

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>

H. Samet, Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS, Addison Wesley, Reading, MA, 1990. ISBN 0-201- 50300-0.

1. Definition, Concepts and types of Region(Formal and Functional)
2. Planning Region, Need of Regional Planning
3. Concept of Regional Development
4. Regional Imbalance in India
5. Problems of Functional Region
6. Choice of a Region for Planning: Characteristics of an Ideal Planning Region;
7. Regionalization of India for Planning (Agro Ecological Zones)
8. Strategies/Models for Regional Development: Growth Pole Model of Perroux
9. Growth Centre Model in Indian Context; Concept of Village Cluster
10. Problem Regions and Regional Planning: Backward Regions and Regional Plans- Special Area Development Plans in India;
11. DVC-The Success Story and the Failures.
12. Development and Regional Disparities in India since Independence: Disparities in Agricultural and Industrial Development

Reference Books

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
B College London at

Bhatt, L.S. (1976) Micro Level Planning in India. KB Publication, Delhi
Deshpande C. D., 1992:

India: A Regional Interpretation, ICSSR, New Delhi.

Dreze J. and A. Sen, Indian Development: Select Regional Perspectives (Oxford: Oxford University Press, 1996).

Raza, M., Ed. (1988).Regional Development.Contributions to Indian Geography.New Delhi, Heritage Publishers.

Rapley, John (2007) Understanding Development: Theory and Practice in the 3rd World.Lynne Rienner, London.

Schmidt-Kallert, Einhard (2005) A Short Introduction to Micro-Regional Planning, Food and Agriculture
Organization of the United Nations (FAO) at

Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India

1. Climate Change: Concepts and evidences
2. Understanding Climate Change with reference to the Geological Time Scale
3. Factors of climate change
4. Green House Gases and Global Warming
5. Isolation, Heat balance of the Earth
6. Global climatic assessment: Role of IPCC
7. Climate change and vulnerability: Physical, economic and social
8. Impact of climate change: Geomorphic Process
9. Impact of Climate Change on Agriculture and Water
10. Impact of Climate Change on Flora and Fauna
11. Global initiatives to climate change mitigation: Kyoto Protocol, Carbon trading, Green development mechanism and Climate fund
12. Resilience building and adaptive strategies with particular reference to South Asia

Reference Books

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.

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.

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.

Palutikof, J. P., van der Linden, P. J. and Hanson, C. E. (eds.), Cambridge University Press, Cambridge, UK

OECD. (2008) Climate Change Mitigation: What Do we do? Organisation and Economic Cooperation and Development.

UNEP. (2007) Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.

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

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

Palutikof, J. P., van der Linden, P. J. and Hanson, C. E. (eds.), Cambridge University Press, Cambridge, UK. ► OECD.

(2008) Climate Change Mitigation: What Do we do? Organisation and Economic Cooperation and Development.

UNEP. (2007) Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.

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

GE 3 OR – Rural Development

6 Credits

1. Concepts and Approaches to Rural Development
2. Need for Rural Development, Gandhian Approach to Rural Development
3. Rural Economic Base: Agriculture and Allied Sectors, Seasonality and Need for expanding Non-Farm Activities,
4. Rural Co-operatives and agricultural marketing
5. Area Based Approach to Rural Development: Drought Prone Area Programmes, PMGSY
6. Target Group Approach to Rural Development: SGSY, MGNREGA, Jan DhanYojana
7. Provision of Services – Physical and Socio-Economic Access to Elementary Education, Primary Health Care, Concept of PURA
8. Rural Governance: Panchayati Raj System
9. Rural Development Policies and Programmes in India
10. Rural Infrastructural Development Programmes
11. Integrated Rural Development
12. Rural Development Programmes for Women and children: NRHM, SarvaSikha Mission

Reference Books

- Gilg A. W., 1985: An Introduction to Rural Geography, Edwin Arnold, London.
- Krishnamurthy, J. 2000: Rural Development - Problems and Prospects, RawatPubls., Jaipur
- Lee D. A. and Chaudhri D. P. (eds.), 1983: Rural Development and State, Methuen, London.
- Misra R. P. and Sundaram, K. V. (eds.), 1979: Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
- Misra, R. P. (ed.), 1985: Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi. ► Palione
- M., 1984: Rural Geography, Harper and Row, London. Page 76
- Ramachandran H. and Guimaraes J.P.C., 1991: Integrated Rural Development in Asia – Learning from Recent Experience, Concept Publishing, New Delhi.
- Robb P. (ed.), 1983: Rural South Asia: Linkages, Change and Development, Curzon Press.
- UNAPDI 1986: Local Level Planning and Rural Development: Alternative Strategies. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publs. Co., New Delhi.
- Wanmali S., 1992: Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
- Yugandhar, B. N. and Mukherjee, Neela (eds.) 1991: Studies in Village India: Issues in Rural Development, Concept Publs. Co., New Delhi.

SEC 1 – Computer Basics and Computer Applications

2 Credits

1. Numbering Systems; Binary Arithmetic
2. Data Computation, Storing and Formatting in Spreadsheets: Computation of Rank, Mean, Median, Mode, Standard Deviation, Moving Averages, Derivation of Correlation, Covariance and regression; Selection of technique and interpretation.
3. Preparation of Annotated Diagrams and its interpretation: Scatter diagram and Histogram
4. Internet Surfing: Generation and extraction of information

Reference Books

- Bartee, Thomas C. (1977): Digital Computer Fundamental; McGraw Hill.
- Chauhan, S.; Chauhan, A. and Gupta, K. (2006): Fundamental of Computer; Firewall Media.
- Flake, L.J.; McClintock, C.E. and Turner, S. (1989): Fundamental of Computer Education; Wordsworth Pub. Co.
- Leon, A. and Leon, M. (1999): Introduction to Computer, USB Publishers' Distributors Ltd.
- Malvino, A.P. and Leach, D.P. (1981): Digital Principles and Applications; Tata McGraw Hill.
- Mano, Morris M. and Kime, Charles R. (2004): Logic and Computer Design Fundamental; Prentice Hall.
- Rajaraman, V. (2003): Fundamentals of Computer, Prentice Hall Publisher
- Sarkar, A. and Gupta, S.K (2002) Elements of computer Science, S Chand and Company, New Delhi
- Blissmer (1996): Working with MS Word; Houghton Mifflin Co.
- Johnson, Steve (2007): Microsoft Power Point 2007; Pearson Paravia Bruno.
- Leon, A. and Leon, M. (1999): Introduction to Computer, USB Publishers' Distributors Ltd.
- Leon, A. and Leon, M. (1999): A beginners Guide to Computers, Vikas
- Rajaraman, V. (2008): Computer Primer; Prentice Hall of India Pvt. Ltd.
- Sarkar, A. and Gupta, S.K (2002) Elements of computer Science, S Chand and Company, New Delhi
- Shepard, Aaron (2007): Perfect Pages; Shepard Publications.
- Tyson, Herbert L. (2007): Microsoft Word 2007 bible; John Wiley.
- Walkenbach, John (2007): Excel 2007 Bible; John Wiley.

SEC 1 OR – Remote Sensing

2 Credits

1. Concepts and Principles of Remote Sensing (RS): Classification of RS satellites and sensors
2. Sensor resolutions and their application with reference to IRS and Landsat missions, image referencing schemes and data acquisition.
3. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM. Principles of image rectification and enhancement.
4. Principles of image interpretation and feature extraction, Preparation of inventories of landuse land cover features from satellite images.

A project file consisting of four exercises on the above themes is to be submitted

Reference Books

Bhatta, B. 2008. Remote Sensing and GIS, Oxford University Press, New Delhi.

Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press

Jensen, J. R. (2005) Introductory Digital Image Processing: A Remote Sensing Perspective, Pearson Prentice-Hall.

Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.

Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).

Li, Z., Chen, J. and Batsavias, E. (2008) Advances in Photogrammetry, Remote Sensing and Spatial Information Sciences CRC Press, Taylor and Francis, London

Mukherjee, S. (2004) Textbook of Environmental Remote Sensing, Macmillan, Delhi.

Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.

Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.

