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) – CartographicTechniques 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 study2 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 ofGeological 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

CC 5 (Theory) – Climatology **6 Credits**

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.

CC 7 – Geography of India **6 Credits**

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 Intenational 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. Geomorphology and Cartography

Unit I:Geotectonics and Geomorphology (Theory) **Credits 4**

1. Weathering: Types and related landforms.
2. Lithosphere – Internal Structure of Earth based on Seismic Evidence,
3. Plate Tectonics and its associated landforms

4. Landform development in arid regions
5. Landform development in glaciated regions.
6. Development of fluvial landforms
7. Fluvial Cycle of Erosion – Davis and Penck
8. Hydrological Cycle and ground water.

Reading List

1. Conserva H. T., 2004: Illustrated Dictionary of Physical Geography, Author House, USA.
2. Gabler R. E., Petersen J. F. and Trapasso, L. M., 2007: Essentials of Physical Geography (8th Edition), Thompson, Brooks/Cole, USA.
3. Garrett N., 2000: Advanced Geography, Oxford University Press.
4. Goudie, A., 1984: The Nature of the Environment: An Advanced Physical Geography, Basil Blackwell Publishers, Oxford.
5. Hamblin, W. K., 1995: Earth's Dynamic System, Prentice Hall, N.J.
6. Husain M., 2002: Fundamentals of Physical Geography, Rawat Publications, and Jaipur.
7. Monkhouse, F. J. 2009: Principles of Physical Geography, Platinum Publishers, Kolkata.
8. Strahler A. N. and Strahler A. H., 2008: Modern Physical Geography, John Wiley & Sons, New York.

Unit II: Scale and Cartography (Practical) Credits 2

1. Linear and Comparative scale
2. Proportional diagrams: Circles and squares
3. Composite bar diagram and age-sex pyramid.
4. Taylor's Climograph and Hythergraph

Reading List

1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.
2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing.
4. Robinson A., 1953: Elements of Cartography, John Wiley.
5. Sharma J. P., 2010: PrayogicBhugol, Rastogi Publishers.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers
7. Singh R. L., 1998: PrayogicBhoogolRooprekha, Kalyani Publications.
8. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London.

GE 2 – Physical Environment and Surveying

Unit I: Climatology, Soil and Biogeography (Theory)Credits 4

1. Elements of weather and climate. Thermal and chemical composition and layering of the atmosphere.
2. Horizontal and vertical distribution of temperature
3. Forms of precipitation and types of rainfall
4. Tropical and Temperate Cyclones, Climatic Classification (Koppen)
5. Definition of soil. Physical and chemical properties of soil (soil texture, colour and pH)
6. Soil forming factors. Soil formation (Podzol and Laterite)

7. Definition of Biosphere and Biogeography. Meaning of Ecology, Ecosystem.Environment, Ecotone, Communities, Habitats and Biotopes.
8. Biomes: Rainforest and Temperate Grassland.

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

Unit II: Surveying and Levelling (Practical) Credits 2

1. Definition and classification of surveying
2. Plane table survey by radiation method.
3. Open and close traversing by Prismatic Compass
4. Drawing of longitudinal profile by Dumpy level

GE 3 – Human Geography and Map Study

Unit I: Human Geography (Theory) Credit4

1. Definition, Nature, Major Subfields, Contemporary Relevance
2. Space and Society: Cultural Regions; Race; Religion and Language
3. Eskimos: Adjustment to the environment and recent development
4. Population: Population Growth and Demographic Transition Theory
5. Types of population migration with reference to India
6. World Population Distribution and Composition (Age, Gender and Literacy)
7. Settlements: Types and Patterns of Rural Settlements;
8. Classification of Urban Settlements; Functional classification of towns

Reading List

1. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
2. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
3. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
4. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, New York.
5. Kaushik, S.D. (2010) ManavBhugol, Rastogi Publication, Meerut.
6. Maurya, S.D. (2012) ManavBhugol, ShardaPustakBhawan. Allahabad.
7. Ghosh, S. (2015) Introduction to settlement geography. Orient Black Swan Private Ltd.,Kolkata
8. Hussain, Majid (2012) ManavBhugol. Rawat Publications, Jaipur

Unit II: Map Projection and Map interpretation (Practical) Credits 2

1. Simple Conical projection with one standard parallel

2. Cylindrical Equal Area projection
3. Interpretation of Topographical maps: Relation between Physiography, drainage and settlement
4. Interpretation of weather maps

Reading List

1. Dent B. D., 1999: Cartography: Thematic Map Design, (Vol. 1), McGraw Hill.
2. Gupta K. K and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept Publishing.
4. Robinson A., 1953: Elements of Cartography, John Wiley.
5. Sharma J. P., 2010: PrayogicBhugol, Rastogi Publishers.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers
7. Steers J. A., 1965: An Introduction to the Study of Map Projections, University of London.

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 Annoted 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 Appications; Tata McGraw Hill.
Mano, Moris 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
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OR

SEC 1 – 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

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