

Goa University Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
w.e.f. 2017-18
GEOGRAPHY CORE COURSE (GPSC-IA: PRACTICAL-I)
INTRODUCTION TO CARTOGRAPHIC TECHNIQUES
F. Y. B. A. SEMESTER-I

COURSE CREDITS: *01. **TOTAL sessions:** *15 Laboratory sessions of continuous 2 hours duration.

COURSE OBJECTIVES: To develop skills and techniques in map reading and map making.

LEARNING OUTCOMES: At the end of this practical course, students will be able to locate places on the maps. It will enable students to understand maps and interpret the same. Students will also acquire basic skills of drawing maps.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	NO. OF SESSIONS
I	Introduction to Cartography and Cartographic Techniques. Exercises: Shape of the Earth. Location of Places on the Globe, Latitude, Longitude and Time, Time Zones. Scale and its Types– System of Measurements (British and Metric System), Conversion of Scale (RF to Verbal and Vice Versa), Construction of Simple, Comparative, Diagonal, Time and Distance Scale.	10	8
II	Exercises: Study of Globe and Map; Enlargement and Reduction of Maps by Square Method. Maps: Base Maps, Format of a Map. On Campus Field Work: Finding Directions, Measurement of Distances, Calculation of area. Measurement of Area on the Map and Toposheets (By Square Method).	10	7
III	Certified Journal & Viva-Voce	3+2=5	
	Total	25	15

Weightage of Marks: 25.

Total marks: 25

Credit: 1

Instructions

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiment exercise in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the Head of the Department of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload: One lab session of continuous 2 hrs. Total no. of laboratory sessions: 15 equivalent to 30 hours.
4. The duration of practical exam: 3 hrs carrying 25 marks (May be set for 50 marks and proportionately adjusted from/to 25).
5. Practical examination is to be conducted at the end of the Semester prior to the Theory examination in Geography Laboratory or exclusively designated place/s.

Suggested Readings / References

1. Gopal Singh: Map Works and Practical Geography.
2. Singh and Kanaujia: Elements of Practical Geography.
3. Monkhouse F. J. : Maps and Diagrams.
4. Akhtar, Raise: Principles of Cartography.
5. Mishra R. P. and Ramesh A: Fundamentals of Cartography.

THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
w.e.f. 2017-18
GEOGRAPHY CORE COURSE (GPSC-IB THEORY)
SOCIAL AND CULTURAL GEOGRAPHY
F. Y. B. A.
SEMESTER-II

COURSE CREDITS: *03.

Total Periods / Lectures: *45 Lectures of 1 Hour Duration each.

COURSE OBJECTIVES: The paper intends to sensitize students with socio-cultural aspects and the related contemporary issues in India and the world with a geographical outlook. The philosophy of the subject is to be taught in order to develop a keen interest in the subject and to pursue it for higher studies.

LEARNING OUTCOMES: At the end of this course, the students will be able to gain knowledge and understand the fundamental concepts of social and cultural geography of the world w.s.r.t. India. They will also acquire the skills to apply the knowledge to solve the day-to-day socio-cultural issues.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Introduction to social and cultural geography. Physical-Cultural Environment and major regions of the world: Equatorial, Monsoon, Grasslands, Mediterranean, Tundra, Taiga and Desert regions. Introduction to culture and civilization, cultural realms, cultural landscapes. Basis of classification of cultural regions.	25	15
II	World population: growth, distribution, Factors affecting world population, rural-urban composition, urbanization. Migration – causes and effects. Linguistic Composition: Global linguistic mosaic, origin and characteristic, linguistic classification of India. Religious Composition: Origin and regional distribution of religions, Major Religions and Cultures, Global and Indian Religious and Cultural Conflicts.	25	15
III	Races of the world: Basis of racial classification, races of India, tribal societies in India. Ethnicity- inequality and conflicts. Contemporary Issues: Gender Inequality, Nutrition, Health and Diseases. Refugees, Communalism, Terrorism, Naxalism and Separatist Groups; Peace efforts. Social wellbeing: Indicators and Efforts in India. Socio-cultural regions in India.	25	15
	Total	75	45

Weightage of Marks: I. S. A: 15 + S. E. E.: 60

Total= 75.

Credits: 3

Instructions:

1. Maximum thrust to be given to national and local examples.
2. Questions should be set with due weightages to all the units as specified above.

Suggested Readings / References

1. Bergwan, Edward E.: Human Geography: Culture, Connections and Landscapes, Prentice Hall, N.J.
2. Carr M.: Pattern, Processes and Change in Human Geography, Macmillan, London.
3. Fellman J. L.: Human Geography: Landscapes of Human Activities, Brown & Benchman, USA.
4. De Blij H. J. and Alexandar: Human Geography, Culture, Society and Space, John Wiley, New York.
5. Hussain, Majid: Human Geography, Rawat Publishers, Jaipur.
6. Chandna, R. C.: Population Geography, Kalyani, Delhi.
7. Pathak, C. R.: Spatial Structure and Development in India, RSAI.
8. Unisa, S. Ram, F. and Sekhar: Population, Gender and Reproductive Health, IIPS, Mumbai.

THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME

w.e.f. 2017-18

GEOGRAPHY CORE COURSE (GPSC-IB: PRACTICAL-II)
PRACTICALS IN SOCIAL AND CULTURAL GEOGRAPHYF. Y. B. A.
SEMESTER – II

COURSE CREDITS: *01for *B. A.

TOTAL SESSIONS: *15 Laboratory sessions of continuous 2 hours duration each per week per batch.

COURSE OBJECTIVES: To develop skills and techniques for representation of social and cultural data.

LEARNING OUTCOMES: At the end of this practical course, the students will be able to express and appreciate social and cultural information through cartograms, graphs and charts. It will enable the students to understand and interpret the same. Finally the students will acquire basic skills of drawing a variety of graphs and cartograms.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	NO. OF SESSIONS
I	Introduction to Social and cultural data. Cartographic Representation of Population Data on Paper and Graph Papers (Exercises to be given on actual data from authentic sources, which should also be acknowledged in the exercise/s) Line Graph and its types. Bar Graph and its types. Pie Diagram. Age-Sex Pyramid. Urban-Rural Pyramid. Ergo-graph (Circular and Graphical). Tri-Linear Chart. Flow Diagrams.	10	8
II	Cartographic Exercises on World Maps, State wise Map of India and Taluka Level map of Goa (Data should be Actual and pertain to recent period, i.e. within last 10 years) Dot Maps: Uniform and Multiple. Choropleth. Proportional Circles. Spheres. Pictograms. Chorochromatic Maps.	10	7
III	Certified Journal and Viva-Voce	3+2=5	
	Total	25	15

Weightage of Marks: 25.

Credit: 1

Instructions

1. Every candidate shall complete the laboratory work entering all the experiments/exercises in the Practical Book/Journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the HOD of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload- one lab session of continuous 2 hrs. per week. Total number of laboratory sessions: 15.
4. The duration of practical exam: 3 hrs. carrying 25 marks.
5. Practical examination is to be conducted at the end of the Semester prior to the Theory examination in Geography laboratory or exclusively designated place/s.

Suggested Readings / References

1. Singh, Gopal: Map Works and Practical Geography.
2. Singh and Kanaujia: Elements of Practical Geography.
3. Monkhouse F. J.: Maps and Diagrams.
4. Rais: Principles of Cartography.

Goa University Choice Based Credit System
GEOGRAPHY GENERIC ELECTIVE GPGE-I
w.e.f. 2017-18
RESOURCE GEOGRAPHY OF GOA
F. Y. B. A. / B. SC. / B. COM.
SEMESTER I

COURSE CREDITS: 04

Total Lectures: 60 Lectures of 1 Hour Each.

COURSE OBJECTIVES: The main objective of this paper is to orient the students to know the physical and economic settings of Goa. It aims at enabling students to appreciate the prospects of the State of Goa and enlighten them of its imminent problems. Compulsory field work will enable the students to visit places of geographical interest in the state and motivate the students to carry out further study and research in these areas.

LEARNING OUTCOMES: At the end of this Generic course, the students will be able to appreciate physical, social, economic and cultural resources available in the State of Goa. The information will enable the students to become rational citizen and express their understanding before others. Finally the students will acquire basic skills of taking judicious decisions and stand about the state and its activities.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Introduction to Goa Geographical Setting and Physical Resources of Goa Location: Relative and Absolute, Areal extent. Physical Divisions: Mountains, Plains and Plateaus. Geology and Mineral Wealth. Climate: Characteristics and Seasons. River systems and lakes. Soils: Types and distribution. Forest Wealth: Types and distribution.	25	15
II	Human Resources: (pre & post liberation, 21st Century) Population: Growth- decadal and annual, factors. Distribution: Taluka-wise and District-wise; Density: Taluka-wise and District-wise; Age-sex structure, Literacy and Education, Rural- Urban composition Migration: Intra-state, Interstate and International. Occupational structure: Taluka wise and Rural and Urban Future of Population: Short term and long term.	25	15
III	Resource Utilization: pre & post liberation, 21st Century Power resources and its limitations. Water Supply Works and Irrigation Projects Transport: Modes and Distribution Role of Banking and Insurance resource utilization Health care and educational facilities Communication (traditional & modern) Information Technology (IT): infrastructure and utility.	25	15
IV	Regional Disparity and Regional Planning in Goa Variations in Levels of Socio-Economic Development (High, Medium And Low) in Coastal, Mid-Land and Ghat Talukas. Rural -Urban Divide and Rural- Urban Continuum Measures and Efforts of Regional Development in Goa	25	15
	TOTAL	100	60

Weightage of marks: ISA 20 + SEE 80

Total= 100.

Credit: 4

Instructions

1. Thrust may kindly be given to draw national and regional examples by the teachers.
2. Field orientation should be attempted by the teachers and the Institutions for verifying ground truths.
3. The Current topics of Local, Regional & National interest have to be updated by referring to subject journals, newspapers, websites and other relevant materials.
4. Questions should be set with due weightages to all the units as specified above and/or Goa University instructions.

Suggested Readings / References

1. Govt. of India: Gazetter of Goa, Daman & Diu, Govt. Printing Press, Panaji-Goa.
 2. Angle, P. S.: An Economic Review of Goa, 1992.
 3. Goa University, Goa through the Ages – Vol. I, II & III, Publications Dept.
 4. Govt. of Goa (1988), Regional Plan for Goa 2001, Govt. Printing Press, Panaji, Goa.
 5. Govt. of Goa, Statistical Pocket Books, Govt. Printing Press, Panaji.
 6. Eco-Forum, Fish Curry and Rice, An other India Press Publication.
 7. NCAER, Techno Economic Survey of Goa by Govt. Printing Press, Panaji.
 8. Goa Chamber of Commerce and Industry, Thirty years of Economic Development, 1992, Panaji.
 9. Daily newspapers published from Goa (Publication Houses).
 10. Olivinho J. F. Gomes, Goa published by National Book Trust India.
 11. Govt. of Goa, Economic Survey of Goa, DPSE publication, Govt. Printing Press, Panaji, Goa.
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Goa University Choice Based Credit System
GEOGRAPHY GENERIC ELECTIVE-GPGE-II

w.e.f. 2017-18

F. Y. B. A. / B. SC. / B. COM.

SEMESTER II

GEOGRAPHY OF RESOURCE UTILIZATION IN GOA

COURSE CREDITS: 04

Total Lectures: 60 Lectures of 1 Hour duration each.

COURSE OBJECTIVES: To orient the students to comprehend the prevailing pattern and limitations of Resource Utilization in Goa. It aims at enabling the students to appreciate the prospects of the State and take pro active stand to solve its problems. Compulsory field work component will enable the students to visit places of geographical interest in the state and motivate students to carry out further study.

LEARNING OUTCOMES: At the end of this Generic course, the students will be able to appreciate physical, social, economic and cultural resources utilization in the State of Goa. The information will enable the students to become rational citizen and express their understanding before others. Finally the students will acquire basic skills of taking judicious stand about the state and its prospective activities.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	<p>Geographical Study of primary activities in Goa</p> <p>Agriculture: Significance of agriculture to the State's economic Surge. Factors affecting agriculture in Goa: physical, economic, social and technological. Status of agriculture during pre-liberation, Changes in post-liberation and post-liberalization period, Current problems associated with Goan agriculture. Farming Types: Kharif & Rabi, humid farming, horticulture, plantation; <i>Vaingan, Puran Xeti, Kumeri, Kulagar</i>. Major Crops: Factors of Growth, methods of cultivation, distribution and production of cereal crops (rice, millets), cash crops (cashew, sugarcane), garden crops (coconut, beetle nut). Animal Husbandry: Types of livestock, dairy and poultry farming and their place in Goan economy, Government schemes to promote poultry and dairy farming in the State. Fishing: Types (shore and inland fisheries), species, fishing seasons, fishing jetties, production, marketing, changes, problems and future prospects.</p>	25	15
II	<p>Geographical Study of Mining & Manufacturing in Goa</p> <p>Mining: History of mining in Goa, mining methods, production and trade of minerals (iron ore, manganese, bauxite), Benefits of mining to the economy and society, Negative socio-economic and environmental impacts of mining, Current issues related to mining in the State. Manufacturing: Industrial scenario in pre-liberation Goa, Stages of Industrial Development during post-liberation and post liberalization period; Role of GIDC, Industrial Estates, Broad Industrial Policy; Types of Industries: House Hold, Handicrafts, Small Scale Industries, Medium and Large Scale Industries. Study of Industries: Sugar, Chemicals and Fertilizers, Pharmaceutical, Shipbuilding, Forest based industries, and Software industries. Importance of Industries to Goa, Problems associated with</p>	25	15

Goa University Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
w.e.f. 2017-18
GEOGRAPHY CORE COURSE (GPSC-IA THEORY)
INTRODUCTION AND FUNDAMENTALS OF GEOGRAPHY
F. Y. B. A. SEMESTER-I

COURSE CREDITS: 03

Total Periods/Lectures: 45.

COURSE OBJECTIVES: This introductory paper is intended to acquaint the students with distinctiveness of Geography as a field of learning. The philosophy of the subject is to be taught in order to develop a keen interest in the subject and to pursue it for higher studies.

LEARNING OUTCOMES: At the end of this course students will be able to gain knowledge and understand the fundamentals of geographical concepts. They will also acquire the skills to apply this knowledge to solve day to day problems and geographical issues.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Geography: Introduction, Meaning, Definition, Nature and Scope Of Geography as a Discipline, Multi Disciplinary Approach. Pioneers in Geography and their Contributions: Erastosthenes, Ptolemy, Galileo, Vidal De La Blache, Carl Ritter, Homboldt, W. M. Davis, Walter Christaller; Development of Geography in India. Major divisions and branches of geography (Physical & Human Geography). Recent trends in Geography. Career opportunities for Geographers. Major themes in Geography: Location, Place, Human-Environment Interaction, Movement, Regions.	25	15
II	Physical geography: Introduction to the Solar System, Basic Study of planets; Earth & Moon Relationship (Rotation, Revolution, Eclipse, Phases of Moon). Domains of earth: Lithosphere: Composition and structure, Orders of relief, Distribution of Oceans and Continents. Atmosphere: Composition and structure, Elements of weather and climate. Hydrosphere: Composition and distribution, Hydrological cycle. Introduction to Geological Time Scale.	25	15
III	Human geography: Major schools of Thought: Environmental Determinism, Possibilism, Neo-Determinism. Human Beings, Culture and Environment. Geography and Development: Levels of Development based on Social, Economic and Demographic Indicators. Geography and Nationalism.	25	15
	Total	75	45

Weightage of Marks: I. S. A: 15 + S. E. E.: 60

Total= 75.

Credits: 3

Instructions

1. Maximum thrust to be given to local and national examples.
2. Questions should be set with due weightages to all the units as specified above and/or on university pattern.

Suggested Readings / Reference Materials

1. Dikshit R.D.: Geographical Thought - A Contextual History of Ideas, P. Hall of India Pvt. 2000.
2. Harvey, David: Explanation in Geography, Edward - Arnold, London, 1972.
3. Hussain, Majid: Evolution of Geographical Thought, Rawat Publications, Jaipur, 1984.
4. Lal D. S.: Climatology, Pushtak Mahal, Allahabad.
5. Goh Cheng Leong: Certificate Physical and Human Geography, Oxford University Press, New Delhi.
6. Das Gupta and Kapoor: Principles of Physical geography.

	Industrialization in Goa, Environmental movements and their impact on Industrialization of Goa.		
III	Geographical study of tertiary activities-I Tourism: Meaning, types of tourists; tourist seasons and arrivals. Major tourist attractions (natural, historical, religious-socio-cultural), leading destinations and tourism infrastructural facilities in the State. Factors promoting tourism in Goa. Positive and negative impacts of tourism in Goa: Economic, socio-cultural, political and environmental. Role of GTDC. Diversification efforts and future prospects and problems. Transport: Development of transport network, modes and their functional significance (air, roadways, railways and waterways), problems of transport system, future prospects.	25	15
IV	Geographical Study of Tertiary Activities-II Trade: Internal (intra-state and inter-state) and foreign trade—composition, direction, changes and future prospects. Ports: Major and minor ports, Mormugao and Panaji Port— history, hinterland, major developments, prospects and problems. Study tour and report* Local study tour to / local survey in a place of physical, social, economic and cultural importance and submission of a Report to that effect is compulsory (<i>to be Pre submitted and Assessed before the announcement of SEE Schedule</i>).	15	10
		10	05
	Total	100	60

Weightage of marks: ISA: 20+SEE: 80 (inclusive of Field Study component: 10) Total = 100 Credit: 4

Instructions

1. Thrust must be given to draw examples from national and regional issues as well.
2. The day to day up-dating of Current events of local, Regional & National interests should to be disseminated to the students by referring the subject related journals, reference to news papers and electronic media and other relevant materials so that the students can keep themselves abreast with latest information.
3. Questions should be set with due weightage to all the units as specified above and/or GU pattern.
4. **The field trip / survey mentioned above in the curriculum carries the workload for 5 hours per day for a batch of maximum 60 students (one division). The field trip / survey is to enable the students to collect first hand information or primary data and verify the concepts taught in the class.**

Suggested Readings / References:

1. Govt. of India: Gazetteer of Goa, Daman & Diu, Govt. Printing Press, Panaji-Goa
2. Angle P. S.: An Economic Review of Goa.
3. Govt. of Goa (1988), Regional Plan for Goa 2001, Govt. Printing Press, Panaji, Goa.
4. Govt. of Goa, Statistical Pocket Books, Govt. Printing Press, Panaji.
5. Fish Curry and Rice, An Eco-Farm Publication.
6. NCAER, Techno Economic Survey of Goa by Govt. Printing Press, Panaji.
7. Goa Chamber of Commerce & Industry, Thirty years of Economic Development by 1992, Panaji.
8. Daily newspapers published from Goa (Publication House) and Television News covering Goa.
9. Gomes, Olivinho J. F., Goa by National Book Trust India, New Delhi.
10. Faces of Goa, Larsen, Karin, Gyan Publishing House, New Delhi, 1998.
11. Govt. of Goa, Economic Survey of Goa, DPSE publication, Govt. Printing Press, Panaji, Goa.

2. The day to day up-dating of Current events of Local, Regional & National interests should to be disseminated to the students by referring the subject related journals, reference to news papers, electronic media and other relevant materials so that the students can keep themselves abreast with latest information.
3. Questions should be set with due weightage to all the units as specified above and/or GU pattern.

Suggested Readings / References and Books Recommended for study

1. P. S. Verma & V. K. Agarwal, Environmental Biology, S. Chand & Co. Ltd.
 2. P. D. Sharma, Ecology and Environment.
 3. Benu Singh, Ecology and Environment, Vista International Publishing House, Delhi.
 1. M. P. Arora, Ecology by Himalaya Publishing House.
 4. M. C. Dash, Fundamentals of Ecology by Tata McGraw Hill Publishing Co. Ltd., New Delhi.
 5. E. P. Odum, Ecology by Oxford & IBH Publishing Co. Pvt. Ltd.
 6. H. D. Kumar, Modern Concepts of Ecology by Vikas Publishing House Pvt. Ltd.
 7. Pramod Singh, Ecology of Urban India.
 8. Singh K Ecology of Rural India.
 9. S. C. Santra, Environmental Science.
 10. Mahesh Rangnathan, Environmental issues in India.
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THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System) w.e.f. 2018-19
GEOGRAPHY CORE COURSE GPSC IC THEORY
S. Y. B. A. SEMESTER-III
GEOGRAPHY OF NATURAL RESOURCE DEVELOPMENT

COURSE CREDITS: *03+01=04

Theory: 45 Sessions of One Hour Duration each. Practical: 15 Sessions of continuous 2 hours duration.

COURSE OBJECTIVES: To provide an exposure to develop geographical knowledge in understanding and appreciating the distribution of natural resources of the world in general and India in particular.

LEARNING OUTCOMES: At the end of the successful completion of this course, students will be able to understand the location of resources in the world and their occurrences in places within India. It will enable students to understand the interaction among various resources.

Unit No	Course Content	Marks / Weightage	No. of Sessions
I	Economic Geography: Meaning, Definitions and significance. Bases of world Economy: Physical, Economic, Cultural and Technological; Classification of Economic activities. Historical Evolution of world economic systems: Medieval feudal economies, The rise of Mercantilism & its economic benefits, Emergence of colonialism & its economic benefits, Mechanism of modern economic systems.	25	15
II	Natural Resources: Meaning, Classification and their significance. Distribution and Development: i) Forest Resources: Types of Forest, Study of Tropical & Temperate Forest, Conservation of Forest ii) World Fisheries: factors affecting distribution, major fishing grounds, Fish Conservation. iii) Mineral Resources: Economic Significance, Global and Indian Distribution a) Metallic: Ferrous - Iron Ore, Non-Ferrous – Bauxite. b) Fuel & Power Resources: Coal & Petroleum. Renewable: Hydel power. c) Non-Conventional Energy Resources-Merits and distribution.	25	15
III	World Agriculture: Types of Agriculture a) Intensive and Extensive farming b) Subsistence and commercial farming, c) Mixed and Plantation Agriculture. Crops: Cereals - Rice & Wheat; Cash Crops: Beverages-Tea, Coffee; Industrial Crops: Cotton, Sugarcane. Agricultural Land Use Theory by Von Thunen.	25	15
	Total	75	45

Weightage: I.S.A: 15 + S.E.E: 60

Total= 75. Credits: 03

Instructions

1. Maximum thrust may be given to local, regional, national and international examples.
2. Questions should be set with due weightage to all the units as specified.
3. Due weightage for maps, diagrams in teaching as well as in paper setting is mandatorily expected.

References

1. Boesch, H.: A Geography of World Economy, Van Nostrand Co., New York, 1964.
2. Chapman J. D.: Geography and Energy, Longman, London, 1989.
3. Hartshorne T. N. & Alexander J. W.: Economic Geography, Prentice Hall, New Delhi, 1988.
4. Jones C. F. and Darkenwald G. G: Economic Geography, Macmillan & Co, New York, 1975.
5. Smith, D. M: Industrial location: An Economic Geographical Analysis, John Wiley, New York, 1971.
6. Bengston & Van, G. H. Royan: Fundamentals of Economic Geography, Prentice Hall, New

Delhi, 1988.

7. Leong, G. C. & Morgan, G. H. Human & Economic Geography, Oxford Univ. Press, New York.

THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System) w.e.f. 2018-19
GEOGRAPHY CORE COURSE GPSC-1C PRACTICAL-III
CARTOGRAPHIC TECHNIQUES
S. Y. B. A.
SEMESTER-III

COURSE CREDITS: 01

TOTAL SESSIONS: *15 Laboratory sessions of continuous 2 hours duration each per week per batch.

COURSE OBJECTIVES: To develop skills and techniques for transformation of globe information to Paper. Representation and representation of physical features and data pertaining to physical geography.

LEARNING OUTCOMES: At the end of this practical course, the students will be able to express and appreciate globe and map information through. It will enable the students to understand and interpret the same. The students will also acquire basic skills of drawing a variety of physical geography graphs and cartograms.

NI T	COURSE CONTENTS	MARKS WEIGHTAG	NO. OF PRACTICALS
I	a) Projections: Definition, classification of projection, Uses and properties. b) Construction of zenithal projection, zenithal gnomonic projection, zenithal stereographic projection, zenithal orthographic projection, zenithal equal projection. c) Construction of conical projection: Simple conical projection with one standard parallel; Simple conical projection with two standard parallel. d) Construction of cylindrical projection: Cylindrical equidistant/simple cylindrical projection; Cylindrical equal area projection e) Choice of projection.	10	8
II	Methods of Representation of Relief features – spot heights, Bench Marks, Hachures, Hill shading Contours diagrams – hills, plateaus, mesa, cliff, V-shaped valley, waterfall, escarpment, spur, U-shaped valley, Hanging Valley, Volcano with crater, Ria coast, Fiord coast, Profile drawing and types.	10	7
III	Certified Journal and viva-voce	3+2=5	
	Total	25	15

INSTRUCTION

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiments/exercises in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the Head of the Department of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload per week- one lab session of 2 continuous hrs. per batch.
4. The duration of practical exam: 3 hrs carrying 50 marks (finally weighted to 25).
5. Practical examination is to be conducted at the end of every Semester prior to the Theory (exam).

REFERENCE

- i. Singh Gopal: Map Works and Practical Geography.
- ii. Singh and Kanaujia: Elements of Practical Geography.
- iii. Monkhouse, F. J.: Maps and Diagrams.
- iv. Raise: Principles of Cartography.
- v. Mishra R. P. and Ramesh: Fundamentals of Cartography.

THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System)
GEOGRAPHY CORE COURSE GPSC ID THEORY
w.e.f. 2018-19
S. Y. B. A.
SEMESTER-IV
GEOGRAPHY OF SECONDARY AND TERTIARY ACTIVITIES

COURSE CREDITS: 03+*01=04.

Theory: 45 Sessions each of 1 Hour Duration.

***Practical: 15 Sessions each of 2 hours duration.**

COURSE OBJECTIVES: The paper intends to sensitize students with the geographical approach to study secondary and tertiary economic activities and the related contemporary issues in India and the world. The subject is to be taught with maps in order to develop a keen interest in the subject and to pursue it for higher studies.

LEARNING OUTCOMES: At the end of this course, the students will be able to gain knowledge and understand the fundamental concepts of economic geography of the world w.s.r.t. India. They will also acquire the skills to apply the knowledge to solve the day-to-day socio-economic and cultural issues.

Unit No	Course Content	Marks Weightage	No. of Sessions
I	Manufacturing: Meaning and Importance Theories of Manufacturing: 1) Least Cost Theory 2) Profit Maximization Theory 3) Break Point Theory Detailed Geographical study of Following Industries: 1. Iron & Steel 2. Aluminum Industry 3. Petroleum Industry 4. Cotton Textile 5. Sugar Industry, 6. Knowledge Intensive Industry (Electronic).	25	15
II	Study of Tertiary Activities Meaning, Importance, & Types International Transport Land Routes: Major Roads & Railway Ocean Routes: North Atlantic & Indian Ocean Canals Routes: Suez & Panama Major Air Routes	25	15
III	World Trade: Bi-lateral, Multi-lateral Retailing & Wholesaling Cities as Service Center Christaller's Central Place Theory, World City patterns, City Ribbon Corridors, Trade Blocks: WTO, EU, BRICS, & SAARC	25	15
	Total	75	45

Weightage: I. S. A: 15 + S. E. E: 60

Total= 75.

Credit= 3

Instructions

The paper is intended to provide a global exposure to the students. Hence, updated information should be provided and mapping exercises in groups or at individual level is desired.

References or Reading Materials

1. Boesch, H.: A Geography of World Economy, Van Nostrand Co., New York, 1964.
2. Chapman J. D.: Geography and Energy, Longman, London, 1989.
3. Hartshorne T. N. & Alexander J. W.: Economic Geography, Prentice Hall, New Delhi, 1988.
4. Jones C. F. and Darkenwald G. G: Economic Geography, Macmillan & Co, New York, 1975.
5. Smith, D. M: Industrial location: An Economic Geographical Analysis, John Wiley, New York, 1971.
6. Bengston & Van, G. H. Royan: Fundamentals of Economic Geography, Prentice Hall, New Delhi, 1988.
7. Leong, G. C. & Morgan, G. H. Human & Economic Geography, Oxford Univ. Press, New York.

THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System)

GEOGRAPHY CORE COURSE GPSC-1D: PRACTICAL-IV

w.e.f. 2018-19

DATA COLLECTION AND STATISTICAL METHODS IN GEOGRAPHY

S. Y. B. A.

SEMESTER-IV

COURSE CREDITS: 01

TOTAL SESSIONS: 15 Laboratory sessions of continuous 2 hours duration each per week per batch.

COURSE OBJECTIVES: To understand basic statistical methods and skills for cartographic transformation of information. Skills in Tabular and graphical representation of data pertaining to geography will be given.

LEARNING OUTCOMES: At the end of this practical course, the students will be able to collect the field data and represent the collected information through tables and cartograms. It will also enable the students to understand and interpret the same.

UNIT	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING SESSIONS
I	Sampling Techniques: Its Significance in Research & Data collection. Utility of Sampling vs Census method, Types: i) Random Sampling ii) Systematic Sampling iii) Stratified sampling iv) Cluster Sampling v) Purpose Sampling.	5	2
II	Coding of Sample data Classification and Tabulation of Data, Tabular and Graphical form, Pattern of Frequency distribution. Statistical Measures in Geography Calculation of Mean, Median & Mode, Measures of dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation & Variance.	10	8
III	Field Survey and Report: Individual or Group Project of not more than 4 students on any one of the following: Socio-Economic Survey, Agriculture Survey, Demographic Survey, Transport Survey and Disaster Survey. (The Report has to be based on a Questionnaire or Exploration Schedule which should be attached with the Report or in the Journals).	3+2=5	5
	Certified Journal and Viva-voce	3+2=5	
	Total	25	15

Total marks: 25

Credit: 1

INSTRUCTIONS

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiments/exercises in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the Head of the Department of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload per week- one lab session of 2 continuous hrs. per batch.
4. All the above topics need to be dealt with lab exercises on actual and recent data or event.
5. The duration of practical exam: 3 hrs carrying 50 marks (finally weighted to 25).
6. Practical examination is to be conducted at the end of every Semester prior to the Theory (exam).

READING MATERIALS

- i. Singh Gopal: Map Works and Practical Geography.
- ii. Singh and Kanaujia: Elements of Practical Geography.

THREE YEARS GENERAL AND HONOURS DEGREE PROGRAMME**(Goa University Choice Based Credit System)****GEOGRAPHY GENERIC ELECTIVE GPGE-III w.e.f. 2018-19****FUNDAMENTALS OF DISASTER MITIGATION****S. Y. B. A. / B. SC. / B. COM.****SEMESTER III****COURSE CREDITS: 04****Total Lectures: 60 Lectures of 1 Hour Each.**

COURSE OBJECTIVES: The main objective of this paper is to orient the students to know the fundamentals or basic concepts of disaster management and mitigation in a geographical perspective. Studying of disaster management and mitigation as a multi disciplinary subject will also be met. It is to develop awareness amongst the students as the catalyst in the Society.

LEARNING OUTCOMES: At the end of this Generic course, the students will be able to understand the link between the physical unavoidable hazard systems in the world. The information will enable the students to become alert citizen and express their understanding before others. Finally the students will acquire basic skills of taking judicious decisions for saving their family and society at the time of distress.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	1. Introduction to Disaster Management and Disaster Mitigation Fundamentals: Natural Calamities and Accidents and Abuses. Natural Hazards, Risks, Vulnerability and Disasters: Definition and Concepts, Nature, and contents of Disaster Mitigation in Geog. Source of Disaster data (Govt. agencies and NGOs).	25	15
II	2. Disasters in India: (a) Causes, Impact, Distribution and Mapping: Flood, Landslide, Drought with elaborate examples from the world and Indian States.	25	15
III	3. Disasters in India: (b) Causes, Impact, Distribution and Mapping: Earthquake, Tsunami and Cyclone.	25	15
IV	4. Human induced disasters: Causes, Impact, Distribution and Mapping. 5. Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During Disasters	25	15
	TOTAL	100	60

Weightage of marks: ISA 20 + SEE 80**Total= 100. Credit: 4****Instructions**

1. Thrust may kindly be given to draw national and regional examples by the teachers.
2. Field orientation should be attempted by the teachers and the Institutions for verifying ground truths.
3. The data should be updated by referring to journals, newspapers, websites and other relevant materials.
4. Questions should be set with due weightages to all the units as specified above or by Goa University.

Reading List

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

THREE YEARS GENERAL AND HONOURS DEGREE PROGRAMME

(Goa University Choice Based Credit System)

GEOGRAPHY GENERIC ELECTIVE GPGE-IV w.e.f. 2018-19 APPLICATION OF DISASTER RISK REDUCTION AND MITIGATION (WITH A MINI PROJECT)

S. Y. B. A. / B. SC. / B. COM.

SEMESTER IV

Total Lectures: 60 Lectures of 1 Hour Each.

COURSE CREDITS: 04

COURSE OBJECTIVES: The main objective of this paper is to orient the students to apply the fundamental knowledge of disaster risk reduction, management and mitigation in a geographical perspective. It is to develop preparedness amongst the students as the catalyst in the Society.

LEARNING OUTCOMES: At the end of this Generic course, the students will be able to be alert during the unforeseen hazards. The information will enable the students to become moral citizen and use their understanding before others. Finally the students will acquire confidence of taking judicious decisions for saving their family and society at the time of disasters.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Fundamentals of Application of Disaster Risk Reduction and Mitigation: Understanding the Threat, Mental Preparedness, Logistics, Coordination, Warning Signals, Communication Disaster Mitigation in Geog.	30	15
II	Climate Change: Understanding Climate Change; Green House Gases and Global Warming; Global Climatic Assessment- IPCC.	20	15
III	Impact of Climate Change: Agriculture and Water; Flora and Fauna; Human Health Adaptation and Mitigation: Global Initiatives with Particular Reference to South Asia. National Action Plan on Climate Change; Local Institutions (Urban Local Bodies, Panchayats)	30	15
IV	A Mini Project Report based on any one field based case studies among following disasters and preparedness plan of the Government or respective college or locality: 1. Flood, 2. Drought, 3. Cyclone and Hailstorms 4. Earthquake, 5. Landslides, 6. Human Induced Disasters: Fire Hazards, Chemical, Industrial accidents.	20	15
TOTAL		100	60

Weightage of marks: ISA 20 + SEE 80

Total= 100. Credit: 4

Instructions

1. Thrust may kindly be given to draw national and regional examples by the teachers.
2. Field orientation should be attempted by the teachers and the Institutions for verifying ground truths.
3. The data should be updated by referring to journals, newspapers, websites and other relevant materials.
4. Questions should be set with due weightages to all the units as specified above or by Goa University.

Reading List

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

Further Readings

1. 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.

THREE YEARS GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System)
GEOGRAPHY SKILL ENHANCEMENT COURSE GPSEC-I w.e.f. 2018-19
TRAVEL AND TOURISM OPERATION IN GEOGRAPHY
S. Y. B. A. / B. SC. / B. COM.
SEMESTER III

Total Lectures: 60 Lectures of 1 Hour Each.

COURSE CREDITS: 04

COURSE OBJECTIVES: The main objective of this paper is to orient the students to the skills of travel and tourism operation with the fundamental knowledge of tourism geography. It is to develop preparedness to work or assist travel and tourism enterprise in the competitive market in the society.

LEARNING OUTCOMES: At the end of this skill based course, the students will be able to be comprehend the possibilities and unforeseen challenges in travel and tourism activity. The information gained from the course will enable the students to become fair businessman or worker. Finally the students will acquire confidence of taking up tourism related activities which is expanding every where across the world.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Fundamentals of Geography of Travel and Tourism 1. Concepts, Nature and Scope; Inter-Relationships of Tourism, Recreation and Leisure; Geographical Parameters of Tourism by Robinson. Factors influencing the prosperity and development of Tourism	20	15
II	2. Type of Travel and Tourism: Travels: Need based, Vocational, Political, Pilgrimage, Official, Events, Educational, Leisure & Tourism related, Local, National and International, Present Modes of Travel. Tourism: Nature and Eco Tourism, Cultural Tourism, Medical Tourism, Pilgrimage, Educational, Event. 3. Recent Trends of Tourism: International and Regional; Domestic (India); Eco-Tourism, Sustainable Tourism, Meetings, Incentives, Conventions and Exhibitions (MICE)	30	15
III	4. Benefits and Impact of Tourism on Economy, infrastructure, Society at International, National, State and Local Institutional level (Urban Local Bodies, Panchayats) Negative Impacts on economy, society and environment; Human Induced Travel and Tourism Hazards: Fire and travel related accidents.	30	15
IV	5. Travel and Tourism in India: Tourism Infrastructure; Case Studies of Himalaya, Desert and Coastal and Heritage; National and State Tourism Policy.	20	15
	TOTAL	100	60

Total= 100. Credit: 4

Weightage of marks: ISA 20 + SEE 80

Instructions

1. Complete thrust must be given to draw several global, national and regional examples by the trainers.
2. Field orientation should be attempted by the teachers and the Institutions for exposing to ground truths.
3. The information should be updated by referring journals, newspapers, websites and other relevant materials.
4. Questions should be set with due weightages to all the units as specified above or by Goa University.

Reading List

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

Sl. No.	Page No.	Chapter Title
1	1	Introduction to Eco-Tourism
2	2	Concepts of Eco-Tourism
3	3	Importance of Eco-Tourism
4	4	Types of Eco-Tourism
5	5	Development of Eco-Tourism
6	6	Challenges in Eco-Tourism
7	7	Future of Eco-Tourism
8	8	Conclusion
9	9	Bibliography
10	10	Index

THREE YEARS GENERAL AND HONOURS DEGREE PROGRAMME
(Goa University Choice Based Credit System)
GEOGRAPHY SKILL ENHANCEMENT COURSE GPSEC-II w.e.f. 2018-19
APPLIED TRAVEL AND TOURISM OPERATION IN GEOGRAPHY
(WITH A MINI PROJECT)
S. Y. B. A. / B. SC. / B. COM.
SEMESTER IV

Total Lectures: 60 Lectures of 1 Hour Each.

COURSE CREDITS: 04

COURSE OBJECTIVES: The main objective of this skill based paper is to enable the students to apply the fundamental knowledge of travel and tourism operation gained earlier for management and operation in an efficient way. It is to develop preparedness amongst the students as employees or self employed youths in the Society.

LEARNING OUTCOMES: At the end of this skill based training course, the students will be able to be dedicated employees in travel and tourism operation sector. The students will become trained and moral citizen to use their skill. Finally the students will acquire confidence of taking up part time or full time jobs to help their family.

UNIT NO.	COURSE CONTENT	MARKS WEIGHTAGE	TEACHING PERIODS
I	Infrastructure and support system in travel and tour operation Accommodation and supplementary accommodation, travel agencies and tour operators, tour planning, role of guides.	25	15
II	Application of Travel and Tourism Operation Skills through Geographical Networking and Geographical Tools (Maps, Atlases, Satellite Images) Identifying the areas of Interest, Identifying Places of Interest Budget of the Tourists, Suitable seasons for tourism Feasibility in terms of availability of tickets and accommodation.	25	15
III	Identification and liasioning of Agency or Institution (Tourism Dept., Tourism Corporation, tour or travel agency, enterprenure, company etc.). At least 30 hours Duration of Training Programme for skill development and hands on working experience partly supervised by the teacher or Trainer and certified by the Authority of the agency or Institution of training. Training could be individual or Group of not more than 4 to 5.	25	15
IV	A Mini Project Report based on field based work experience under the joint guidance and certification of the Trainer and the Teacher to be submitted by 15 th March. Conduct of a Viva-Voce or Presentation and submission of Marks by 31 st March. Allotment of Marks (50): Attendance in the Training (15) + Discipline, Dedication, Atticates and Skill / Efficiency during the Training (15) + Training Report of 10-20 pgs (15) + Viva-Voce / Presentation (10).	25	15
TOTAL		100	60

Weightage of marks: ISA (Unit I & II) 10 + SEE 40 Training and Report (50) Total= 100. Credit: 4

Instructions

- Thrust should be given to application at international, national and regional levels by the teachers.
- Field orientation is the main focuss, which should be attempted by the students during vacations or non teaching hours. The concerned Institutions should be approached either by students or by teachers or colleges for the hands on training for the students. Periodic checking by the teacher/s is desirable.
- The information should be updated by referring journals, newspapers, websites and other relevant materials.
- Questions should be set with due weightages to all the units as specified above or by Goa University.

Reading List

- Dhar, P.N. (2006) International Tourism: Emerging Challenges and Future Prospects. Kanishka, New Delhi.
- Hall, M. & Stephen, P. (2006): Geog. of Tourism & Recreation-Environment, Place & Space, Routledge, London.
- Kamra, K. K. & 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.

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GEC105: Physical Geography
Geography Core Course (Theory)
B. A. SEMESTER-V

Course Credits: 03 Total Contact Hours: 45 Lectures of 1 Hour Duration each.

Course Objectives: This is an introductory paper which is intended to acquaint the students with basics concepts in physical Geography.

Learning Outcomes: At the end of this course students will be able to gain knowledge and about physical Geography.

Units	Course Content	Contact Hours	Credits
I	Concept and Nature of Physical Geography: Introduction to physical geography Meaning, Definitions, Nature and Scope of Physical Geography Branches of Physical Geography(Geomorphology, Climatology, Oceanography, Soil Geography and Bio geography)	15	1
II	Earth Systems I: Earth and its Structure: Internal Structure of Earth based on Temperature, Density, Pressure & Seismic evidences. Formation and classification of Rocks Folds Faults its origin and type Earthquakes; Volcanoes and Associated Landforms	15	1
III	Earth Systems II: Sun as A source of Energy: Insolation, Factors affecting , Global Heat Budget/ Balance Global Warming, Climate change and its impacts Study of Oceans: Climate Change: Causes and Evidences, Land use change and climate. and its application in agriculture, health and disaster risk reduction Relief & Configuration of Pacific, Atlantic & Indian Ocean. Biosphere: Concepts, ecosystem and their types & world hotspots	15	1
	Total	45	03

Weightage of Marks: I. S. A: 15 + S. E. E.: 60 Total= 75.

References:

1. Bloom, Arthur L., (2008): Geomorphology – A Systematic Analysis of Late Cenozoic Landforms, Prentice Hall, Engle Wood Cliff, New Jersey.
2. Ahmed, E., (2005): Geomorphology, Kalyani Publishers, New Delhi

3. Sharma, V.K., (2006): Geomorphology, Earth Surface, Process and forms, Tata McGraw Hill, New York
4. Lal.D.S ., (2004): Oceanography, Prayag Pustak Bhavan, Allahabad
5. Strahler, A.N., (2005): Physical Geography, 3rd Ed., Wiley Publications
6. Singh, S. (2005): Physical Geography, Prayag Pustak Bhawan, Allahabad
7. Thornbury, W.D., (2004): Principles of Geomorphology, Wiley International.
8. Wooldridge, S.W. and Morgan, R.S., (2008): The Physical Basis of Geography, Longman (First published in 1937)
9. Worcestor, P.G., (2005): A Textbook of Geomorphology, Van Nostrand, 2nd Ed., East West Edition, New Delhi.
10. Chorley, Richard J., (2002): Spatial Analysis in Geomorphology, Harper and Row Publishers, New York, London.
11. Dayal, P. (2nd edition) (2006): A Textbook of Geomorphology, Shukla Book Depot, Patna
12. Sharma, H.S. (ed), (2002): Perspective in Geomorphology, Vol. I & IV, Concept, New Delhi.
13. Sharma, V.K., (2006): Geomorphology, Earth Surface Processes and Forms, Tata Mc. Graw Hill, New Delhi.
14. Sparks, B.W., (2000): Geomorphology, Longman, London, 2nd edition.

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GEC105: Practical in Physical Geography
Geography Core Course (Practical)
B. A. SEMESTER-V

Course Credits: 01 Total Contact Hours: 15 Lectures of 2 Hour Duration each.

Course Objectives: This is an introductory paper which is intended to acquaint the students with basics of topographical mapping.

Learning Outcomes: At the end of this course students will be able to gain knowledge about toposheet map reading and interpretation of the same.

Units	Course Content	Contact Hours
I	Introduction to Survey of India (SOI) toposheets and with reference to: Indexing/ Types Scales and Grid Reference Convectional Signs and Symbols Colour Schemes Marginal Information Calculation of Toposheet Area Comparison of SOI with Ordinal maps of UK and United States Geological Survey Maps (USGS) with reference to: Indexing/ Types Scales and Grid Reference	15
	Topographical Map Interpretation: Study and interpretation of Indian Topographical maps of survey of India (Series - 1: 50000 or 1: 25000) with reference to physiography, drainage and other water bodies, vegetation, landuse pattern, settlements(size, pattern, Utility), transport and communication aspects with reference to: Mountains Plateaus Coastal Plains One day field Excursion for Orientation of Toposheet, Observation and identification of Geographical features and preparation of a brief report	15
	Total	30

Weightage of Marks: 25

Credit: 01

- Unit I: 10 marks, Unit II: 10 marks, field trip report: 03, Certified Journal & Viva Voce: 02 marks.
- It is proposed by the BOS held on 22.02.2019 to conduct the practical examinations for core and electives in 2 sessions on the same day and by the same panel of examiners

Instructions

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiment exercise in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the Head of the Department of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload: One lab session of continuous 2 hrs. Total no. of laboratory sessions: 15 equivalent to 30 hours of workload.
4. The duration of practical exam: 3 hrs carrying 25 marks.
5. Practical examination is to be conducted at the end of the Semester prior to the Theory examination in Geography Laboratory or exclusively designated place/s.
6. Duration of Local trip is not more than two days for FY/SY /TY /B.A./ B.Sc.

Reference Books

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

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GED106: Climatology and Oceanography
Discipline Specific Elective in Geography (Theory)
B. A. SEMESTER-VI

Course Credits: 03 Total Contact Hours: 45 Lectures of 1 Hour Duration each.

Course Objectives: The focus of this course is to introduce key concepts of Climatology and Oceanography in general.

Learning Outcomes: On completion of this course students will be able to understand the concepts of climatology and oceanography and apply the same for interpretation.

Units	Course Content	Contact Hours	Credits
I	Atmospheric Circulation: Inversion of Temperature Forms and processes of Condensation: Clouds formation and types, Cloud burst. Factors controlling Air Motion and resulting Flow Patterns Planetary pressure & wind system, local wind system.	15	1
II	Extreme Events and Climatic Classification: Jet Stream: Origin & Characteristics Genesis of Monsoon with particular reference to South Asia Origin and Classification of Air –masses & Fronts, Frontogenesis and Frontolysis Origin and Characteristics of Tropical and Temperate Cyclones Classification of World Climates: Schemes of Koppen and Thornthwaite	15	1
III	Oceanography: Ocean Salinity & temperature Waves, Types of Tides & Ocean Currents (Atlantic ocean) Coral Reefs & their types	15	1
	Total	45	03

Weightage: I.S.A: 15 + S.E.E: 60 Total= 75

References

- Ahrens, C.D. 2012. Essentials of Meteorology: An Invitation to the Atmosphere. 9th Ed, Cengage Learning.
- Barry R. G. and Carleton A. M., (2001): Synoptic and Dynamic Climatology, Routledge, UK.
- Barry, R.G, Chorley R.J. 2009. Atmosphere Weather and Climate. 9th Ed, Routledge.
- Barry R. G. and Corley R. J., (1998): Atmosphere, Weather and Climate, Routledge, New York.
- Critchfield H. J., (1987): General Climatology, Prentice-Hall of India, New Delhi, (2010 Reprint).
- Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan.
- 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.

Websites:

India Meteorological Department: www.imd.gov.in
Intergovernmental Panel on Climate Change: www.ipcc.ch
World Bank Climate Change Knowledge Portal:
sdwebx.worldbank.org/climateportal/index.cfm
World Meteorological Organization: public.wmo.int/en

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GEC106: Application & Interpretation of Weather Maps
Geography Core Course (Practical)
B. A. SEMESTER-VI

Course Credits: 01 Total Contact Hours: 15 Lectures of 2 Hour Duration each.

Course Objectives: This is an introductory paper which is intended to acquaint the students with basics of weather maps.

Learning Outcomes: At the end of this course students will be able to gain knowledge about understanding and interpretation of weather maps.

Units	Course Content	Contact Hours
I	Weather Maps Reading: Introduction to Weather Maps Signs & Symbols used in Weather Report Isobaric pattern: Cyclones, Anti cyclones, V shaped Cyclones, V Shaped, Anti Cyclones, Col Representation of Weather Data (Hythergraph, Climographs, Wind Roses and their types) Weather Instruments (Traditional and Modern) Weather Station models	15
	Study and Interpretation of Indian Daily Weather Report (IDWR): Summer Season South- West Monsoon Season Retreating Monsoon Winter Season Study tour to be conducted & report writing with reference to weather, drainage, climate, soil, topography cultural landscape& economic activities outside the state for minimum of 03 days exclusive of travel time.	15
	Total	30

Weightage of Marks: 25

Credit: 01

- **Unit I: 8marks, Unit II: 8 marks, Field trip report: 05, Certified Journal & Viva Voce: 04marks**
- **It is proposed by the BOS held on 22.02.2019 to conduct the practical examinations for core and electives in 2 sessions on the same day and by the same panel of examiners**

Instructions

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiment exercise in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course

Teacher and the Head of the Department of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.

2. A batch shall consist of not more than 20 students.
3. Workload: One lab session of continuous 2 hrs. Total no. of laboratory sessions: 15 equivalent to 30 hours.
4. The duration of practical exam: 3 hrs carrying 25 marks.
5. Practical examination is to be conducted at the end of the Semester prior to the Theory examination in Geography Laboratory or exclusively designated place/s.
6. Duration of Local trip is not more than two days for FY/SY B.A.B.Sc. Duration for long tour for TYBA/B.Sc will be between 3 to 12 days. The Deputed faculty members will be entitled for the T.A/D.A

References:

1. Anson R. and Ormelling F. J., (1994): International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
2. Gupta K.K. and Tyagi, V. C., (1992): Working with Map, Survey of India, DST, New Delhi.
3. Mishra R.P. and Ramesh, A., (1989): Fundamentals of Cartography, Concept, New Delhi.
4. Monkhouse F. J. and Wilkinson H. R., (1973): Maps and Diagrams, Methuen, London.
5. Rhind D. W. and Taylor D. R. F., (eds.), (1989): Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson A. H., (2009): Elements of Cartography, John Wiley and Sons, New York.
7. Singh R. L. and Singh R. P. B., (1999): Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015) Practical Geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GED102: Physical Geography of India
Discipline Specific Elective in Geography (Theory)
B. A. SEMESTER-V

Course Credits: 03 **Total Contact Hours: 45 Lectures of 1 Hour Duration each.**

Course Objectives: The course provides the basic understanding of India in a brief but adequate manner.

Learning outcomes: At the end of this course, students are expected to have an understanding of the inter linkages and interaction between physical aspects and resource base of India.

Units	Course Content	Contact Hours	Credits
I	Introduction, Location, Extent and Geo-Political significance: Location and extent Relationship with Neighboring countries Geo- Political importance of Indian Ocean Major Physiographic regions and their importance: The Northern mountains The Northern plain Peninsular plateau The Coastal lowlands Islands	15	1
II	The Himalayan Drainage System of India: The Indus The Ganga The Brahmaputra. The Peninsular River system: East flowing Rivers: Mahanadi, Krishna & Cauvery West flowing Rivers: Narmada, Tapi and Mahi Rivers of Sahyadri: Mandovi and Zuari Water Resource Development: multipurpose projects, inland waterways plan	15	1
III	Climatic characteristics, Origin and Mechanism of Monsoons and Various Seasons: Characteristics of Indian Climate Role of various controlling factors on climate of India Monsoons: Origin and Mechanism Various seasons and weather associated with them. Natural Resources: Soil, Forest, Mineral, Power Production Mineral and power resources distribution and utilization: iron ore, coal, petroleum, gas.	15	1

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	Total	45	03
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Weightage: I.S.A: 15 + S.E.E: 60 Total= 75

Reference:

- Deshpande C.D, (1992): India-A Regional Interpretation Northern Book Centre, New Delhi.
- Dhara, M.K., Basu, S.K., Bandyopadhyay, R.K., Roy, B., Pal, A.K., (Eds.) (1999): Geology and Mineral Resources of the States of India, Part-1: West Bengal, Geological Survey of India, Miscellaneous Publication.
- Ghurey, G.S., (1963): The Scheduled Tribes of India, 1980 reprint, Transaction Books.
- Husain, M., (2014): Geography of India, Tata McGraw-Hill Education, New Delhi.
- Johnson, B.L.C., (Ed) (2001): Geographical Dictionary of India, Vision Books.
- Kale, V.S., (2014): Landscapes and Landforms of India, Springer.
- Khullar, D.R., (2011): Indian-A Comprehensive Geography, Kalyani Publishers, New Delhi.
- Krishnan, M.S., (1949): Geology of India and Burma, The Madras Law Journal Press, Chennai
- Learmonth, A.T.A., et.al(ed): Man and Land of South Asia Concept, New Delhi.
- Mamoria, C.B.,(1995): Economic and Commercial Geography of India, Shiv Lal Agarwal & Co, Agra.
- Mandal, H., Mukherjee, S., Datta, A., (2002): India: An Illustrated Atlas of Tribal World, Anthropological Survey of India.
- Pal, S.K., (1998): Physical Geography of India, Sangam Books Ltd, New Delhi.
- Pathak, C.R., (2003): Spatial Structure and Processes of Development in India, Regional Science Association-Kolkata.
- Sharma, T.C., (2012): Economic Geography of India, Rawat Publications, Delhi.
- Singh, J.,(2003): India-A Comprehensive & Systematic Geography, Gyanodaya Prakashan.
- Singh, J., and Dhillon, S.S.,(2004):Agricultural Geography, Tata McGrawHill Education, New Delhi.
- Singh, R.L.,(ed) (1971): India: A Regional Geography. National Geographical Society. India,Varnasi.
- Spat, O.H.K., and Learmonth, A.T.A., (1967): India and Pakistan - Land, People and Economy, Methuen & Co, London.
- Tiwari, R.C., (2006): Geography of India, Prayag Pustak Bhavan, Allahabad.
- Valdiya, K.S., (1998): Dynamic Himalaya, University Press, Hyderabad.
- Valdiya, K.S. (2004): Geology, Environment and Society, University Press, Hyderabad.
- Wadia, D.N. (1967): Geology of India, McMillan & Co, London.

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL AND HONOURS DEGREE PROGRAMME
GED102: Thematic Mapping in Physical Geography of India
Geography Core Course (Practical)
B. A. SEMESTER-V

Course Credits: 01 Total Contact Hours: 15 Lectures of 2 Hour Duration each.

Course Objectives: This is an introductory paper which is intended to enable students to prepare maps various aspects of physical geography of India.

Learning Outcomes: At the end of this course students will be able to gain knowledge about map reading and interpretation of various aspects of physical Geography of India.

Units	Course Content	Contact Hours
I	Preparation and Interpretation of Maps Base Map: Location and extent Neighboring countries Geo- Political link in Indian Ocean region Major Physiographic regions: Mountains, Plateaus, plains and coastal lands.	15
	Drainage Basins of India: The Indus, The Ganga, The Brahmaputra, Mahanadi, Krishna Cauvery Narmada, Tapi and Mahi, Mandovi and Zuari Mapping of Hydel power projects Map of Inland waterways	15
	Maps of Natural Resources: Soil, Forest, Mineral (iron ore, coal, petroleum, gas), thermal power.	
	Total	30

Weightage of Marks: 25

Credit: 01

Unit I: 10 marks, Unit II: 10 marks, Certified Journal & Viva-Voce: 3+2=5

Instructions

1. Every candidate shall complete the laboratory course prescribed by the University entering all the experiment exercise in the laboratory journal, which shall be produced at the time of Practical Examination along with a certificate signed both by the course Teacher and the Head of the Department of Geography of the concerned college to the effect that he/she has completed the prescribed course in a satisfactory manner.
2. A batch shall consist of not more than 20 students.
3. Workload: One lab session of continuous 2 hrs. Total no. of laboratory sessions: 15 equivalent to 30 hours.
4. The duration of practical exam: 3 hrs carrying 25 marks (May be set for 50 marks and proportionately adjusted from/to 25).
5. Practical examination is to be conducted at the end of the Semester prior to the Theory examination in Geography Laboratory or exclusively designated place/s.
6. The modalities of the experiments for the practical examination shall be jointly finalized by the external and internal examiners.

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References:

1. Bolton. T., (2009): Geological Maps: Their Solution and Interpretation, Cambridge Univ. Press. (reprint).
 2. Monkhouse, F.J., Wilkinson, H.R., (1971). Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.
 3. Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C., (1995): Elements of Cartography, 6th ed, Wiley.
 4. Sarkar, A., (2015): Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
 5. Singh, R.L., Singh, R.P.B, (2008): Elements of Practical Geography, Kalyani Publishers.
- WEBSITES:
 - Geological Survey of India: www.gsi.gov.in
 - Indian Naval Hydrographic Department: www.hydrobharat.nic.in
 - National Bureau of Soil Survey and Land Use planning: www.nbsslup.in
 - Survey of India: www.surveyofindia.gov.in
 - ISRO Bhuvan 2D Platform: bhuvan.nrsc.gov.in/map/bhuvan/bhuvan2d.php
 - National Remote Sensing Centre: www.nrsc.gov.in

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL & HONOURS DEGREE PROGRAMME
GED103: Climate Change: Vulnerability and Adaptations
DISCIPLINE SPECIFIC ELECTIVE IN GEOGRAPHY (THEORY)
B. A. SEMESTER-V

Course Credits: 04

Total Contact Hours: 60 Lectures of 1 Hour Each

- 1) **Course Objectives:** The course content allows students who need to acquaint with a different presentation of Earth Science than they have seen/perceived in the class. It supplements the classroom teaching and experiences.

Learning Outcomes: Since important connections of natural surroundings are lost in the dry facts and abstract concepts the discussion with example orientation will give the reader a complete knowledge.

Ultimately a firm grasp of the concepts of how and why our world works makes us partners in a relationship with nature as we are all immersed in every day as we are neither foreign objects or subjects rather than victims of it.

Units	Course Content	Contact Hours	Credits
I	The science of climate change: Origin, scope and trends Climate change with reference to the geological time scale Evidences and factors of climate change: The nature–man dichotomy Greenhouse gases and Global warming Electromagnetic spectrum, atmospheric window, heat balance of the earth	15	1
II	Global climatic assessment: IPCC reports Climate change and vulnerability: Physical; economic and social Impact of climate change: Agriculture and water; flora and fauna; human health and morbidity	15	1
III	Global initiatives to climate change mitigation: Kyoto Protocol, carbon trading, clean development mechanism, COP, climate fund Climate change vulnerability assessment and adaptive strategies with particular reference to South Asia	15	1
IV	National Action Plan on climate change: Role of urban local bodies, panchayats and educational institutions on climate change mitigation Awareness and action programmes	15	1
	Total	60	04

Weightage: I.S.A: 20 + S.E.E: 80 Total= 100

References

1. Parry, M., Canziani, O., Palutikof, J., Linden, P., Hanson, C. (Eds) (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, Cambridge University Press.
2. Field, C.B., Barros V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, D.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R., White, L.L. (Eds) (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.
3. Field, C.B., Barros V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, D.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R., White, L.L. (Eds) (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.
4. Organisation for Economic Co-operation and Development (OECD) (2008): Climate Change Mitigation: What Do we do? Organisation and Economic Co-operation and Development.
5. United Nations Environmental Programme (UNEP) (2007): Global Environment Outlook: GEO4: Environment for Development, United Nations.
6. Singh, M., Singh, R.B., Hassan, M.I. (Eds) (2014): Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Vol-1, Springer.
7. Sen Roy, S., Singh, R.B. (2002): Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH.

Goa University
Choice Based Credit System
THREE YEARS B. A. GENERAL & HONOURS DEGREE PROGRAMME
GED107: Biogeography

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Discipline Specific Elective in Geography (Theory)
B. A. SEMESTER-VI

Course Credits: 04 **Total Contact Hours: 60 Lectures of 1 Hour Duration each.**

Course Objectives: The course provides the understanding of basic concepts in biogeography with reference to spatial and temporal patterns of biodiversity.

Learning Outcomes: At the end of the course students will understand and appreciate the basic concepts in biogeography and biodiversity.

Units	Course Content	Contact Hours	Credits
I	Introduction to Biogeography: Definitions of Biosphere and Biogeography, Concepts of Biogeography, Meaning of Ecology, Ecosystem, Environment, Ecotone, Communities, Habitats, Niche, Biotopes and Biomes. .	15	1
II	Biosphere and Energy: Energy Sources, Laws of Energy Exchange, Food Chains and Flow of Energy. Factors of Plant Ecology: Light, Heat, Moisture, Wind and Topography. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen	15	1
III	Impact of Climate and Soil on Distribution of Flora and Fauna. Biomes: Geographical extent, characteristic features of Tropical Rainforest and Temperate Grassland. Bio-Climatic Regions in India and their Characteristics.	15	1
IV	Wildlife Conservation in India: Projects and their Importance with Special Reference to Tiger and Crocodile. Biodiversity and its Importance with reference to Western Ghat	15	1
	Total	60	04

Weightage: I.S.A: 20 + S.E.E: 80 Total= 100

References:

1. Bhattacharyya, N.N.: Biogeography, Rajesh Publications, New Delhi.
2. Chapman J.L., Rens, M.J.,(1993): Ecology: Principle and Applications, Cambridge University Press, Cambridge.
3. Chiras D.D. Reganold J.P., Owen, O.S., (2002): Natural Resource Conservation. Management for a Sustainable Future. 8th edition, Prentice Hall. Englewood Cliffs.
4. Dash. M.C.(2001): Fundamentals of Ecology, 2nd edition, Tata McGraw-Hill, New Delhi.

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5. Huggett. R., (1998): Fundamentals of Biogeography, Routeledge. London.
6. Husain, M. (ed)., 1994: Biogeography(Part I & II), Anmol Publications, Pvt. Ltd., New Delhi.
7. Kormondy. E.J., (1996): Concepts of Ecology, 4th edition. Prentice-Hall, India.
8. Myers. A.A., Giller. P.S. (editors) (1988): Analytical Biogeography: Approach to the study of Animal and Plant Distributions. Chapman and Hall.
9. Odum E.P.,(1997): Ecology: A Bridge between Science and Society, Sinaur Associates inc. Publishers, Sunderland..
10. Sharma P.D.,(1996): Ecology and Environment, 7th edition, Rastogi Publications, Mirat.
11. Singh, Savindra, 2010: Biogeography, Prayag Pustak Bhawan, Allahabad.
12. Spellerberg. I.F.,Sawyer, J.W.D., (1999): An Introduction to Applied Biogeography: Cambridge University Press, Cambridge.
13. Tiby, 1982: Biogeography, Longman, London
14. Walts, D., 1971: The Principles of Biogeography, Mc. Graw Hill, London.
15. Weddell, B.J.,(2002): Conserving Living Natural Resources in the Context of a Changing World. Cambridge University Press. Cambridge.
16. Young, A.,(2000): Land Resource: Now and Future, Cambridge University Press,

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