



KANNUR UNIVERSITY

(Abstract)

B Sc Geography Programme- Scheme, Syllabus and Pattern of Question Papers of Core and Generic Elective Course under Choice Based Credit and Semester System (Outcome Based Education System-OBE) in Affiliated colleges with effect from 2019 Admission-Implemented-Orders issued.

No.Acad/C/11940/2019

Academic Branch

Civil Station P.O, Dated 20/06/2019

- Read:-
1. U.O.No.Acad.C2/429/2017 dt.10-10-2017
 2. The Minutes of the Meeting of the Curriculum Restructuring Committee held on 28-12-2018.
 3. U.O No. Acad.C2/429/2017 Vol.II dt.03-06-2019
 4. The Minutes of the meeting of the Board of Studies in Geography (Cd) held on 06/06/2019
 5. Submission of Syllabus by the Chairperson, Board of Studies in Geography (Cd) dated 07/06/2019

ORDER

1. A Curriculum Restructuring Committee was constituted in the University vide the paper read (1) above to co-ordinate the activities of the Syllabus Revision of UG programmes in Affiliated colleges of the University.
2. The meeting of the Members of the Curriculum Restructuring Committee and the Chairpersons of different Boards of Studies held, vide the paper read (2) above, proposed the different phases of Syllabus Revision processes such as conducting the meeting of various Boards of Studies, Workshops and discussions.
3. The Revised Regulation for UG programmes in Affiliated colleges under Choice Based Credit and Semester System(in OBE-Outcome Based Education System) was implemented with effect from 2019 Admission as per paper read (3) above.
4. As per paper read (4) above, the Board of Studies in Geography (Cd) finalized the Scheme, Syllabus & Pattern of Question Paper of the Core & Generic Elective Course of B.Sc. Geography Programme, to be implemented with effect from 2019 Admission.

5. As per paper read (5) above, the Chairperson, Board of Studies in Geography (Cd) submitted the finalized copy of the Scheme, Syllabus & Pattern of Question Papers of B.Sc.Geography Programme for implementation with effect from 2019 Admission.
6. *The Vice Chancellor after considering the matter in detail and in exercise of the powers of the Academic Council conferred under Section 11(i) of Kannur University Act 1996 and all other enabling provisions read together with accorded sanction to implement the Scheme, Syllabus & Pattern of Question Paper(Core and Generic Elective Course) for B.Sc.Geography programme under Choice Based Credit and Semester System(in OBE-Outcome Based Education System) in Affiliated colleges with effect from 2019 Admission, subject to reporting to the Academic Council.*
7. The Scheme, Syllabus & Pattern of Question Paper of B.Sc.Geography Programme are uploaded in the University website (www.kannuruniversity.ac.in)

Orders are issued accordingly.

Sd/-
DEPUTY REGISTRAR(ACADEMIC)
For REGISTRAR

To

The Principals of Colleges offering B.Sc.Geography Programme

Copy to:-

1. The Examination Branch (through PA to CE)
2. The Chairperson, Board of Studies in Geography (Cd)
3. PS to VC/PA to PVC/PA to Registrar
4. DR/AR-I, Academic
5. The Computer Programmer(for uploading in the website)
6. SF/DF/FC



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SECTION OFFICER



KANNUR UNIVERSITY

BOARD OF STUDIES, GEOGRAPHY (Cd)

SYLLABUS FOR GEOGRAPHY CORE

AND

GENERIC ELECTIVE COURSES

CHOICE BASED CREDIT AND SEMESTER SYSTEM

(2019 ADMISSION ONWARDS)

**KANNUR UNIVERSITY
VISION AND MISSION STATEMENTS**

Vision: To establish a teaching, residential and affiliating University and to provide equitable and just access to quality higher education involving the generation, dissemination and a critical application of knowledge with special focus on the development of higher education in Kasargode and Kannur Revenue Districts and the Manandavady Taluk of Wayanad Revenue District.

Mission:

- To produce and disseminate new knowledge and to find novel avenues for application of such knowledge.
- To adopt critical pedagogic practices which uphold scientific temper, the uncompromised spirit of enquiry and the right to dissent.
- To uphold democratic, multicultural, secular, environmental and gender sensitive values as the foundational principles of higher education and to cater to the modern notions of equity, social justice and merit in all educational endeavors.
- To affiliate colleges and other institutions of higher learning and to monitor academic, ethical, administrative and infrastructural standards in such institutions.
- To build stronger community networks based on the values and principles of higher education and to ensure the region's intellectual integration with national vision and international standards.
- To associate with the local self-governing bodies and other statutory as well as non-governmental organizations for continuing education and also for building public awareness on important social, cultural and other policy issues.

**KANNUR UNIVERSITY
PROGRAMME OUTCOMES (PO)**

PO 1. Critical Thinking:

- 1.1. Acquire the ability to apply the basic tenets of logic and science to thoughts, actions and interventions.
- 1.2. Develop the ability to chart out a progressive direction for actions and interventions by learning to recognize the presence of hegemonic ideology within certain dominant notions.
- 1.3. Develop self-critical abilities and also the ability to view positions, problems and social issues from plural perspectives.

PO 2. Effective Citizenship:

- 2.1. Learn to participate in nation building by adhering to the principles of sovereignty of the nation, socialism, secularism, democracy and the values that guide a republic.
- 2.2. Develop and practice gender sensitive attitudes, environmental awareness, empathetic social awareness about various kinds of marginalisation and the ability to understand and resist various kinds of discriminations.
- 2.3. Internalize certain highlights of the nation's and region's history. Especially of the freedom movement, the renaissance within native societies and the project of modernization of the post-colonial society.

PO 3. Effective Communication:

- 3.1. Acquire the ability to speak, write, read and listen clearly in person and through electronic media in both English and in one Modern Indian Language
- 3.2. Learn to articulate, analyse, synthesise, and evaluate ideas and situations in a well-informed manner.
- 3.3. Generate hypotheses and articulate assent or dissent by employing both reason and creative thinking.

PO 4. Interdisciplinarity:

- 4.1. Perceive knowledge as an organic, comprehensive, interrelated and integrated faculty of the human mind.
- 4.2. Understand the issues of environmental contexts and sustainable development as a basic interdisciplinary concern of all disciplines.
- 4.3. Develop aesthetic, social, humanistic and artistic sensibilities for problem solving and evolving a comprehensive perspective.

The under graduate programme of B.Sc Geography in Kannur University is designed to reflect the knowledge of theories, concepts, techniques and technologies in human and physical aspects of Geography. Geography is the study of spatial analysis, physical environments and human habitats. It deals with people and places. It covers issues such as global warming and climatic changes, food and water resources, management of ecosystems, human modification of land, regional economic disparities and urban infrastructure from various theoretical aspects. The programme also deals with the physical and social science and provides a unique opportunity to obtain a broad exposure in analyzing the ecological and cultural problems of contemporary society

Prof. (Dr.) P K VIJAYAN
Chairperson
Board of Studies Geography (Cd)
Kannur University

KANNUR UNIVERSITY
Programme Specific Outcome of B.Sc. Geography Programme

After completing the B.Sc. Geography Programme the students will be able to

PSO - 1

Understand the basic bio physical and social world we live in and the drivers responsible for the processes and evolution.

PSO - 2

Demonstrate the concept, theories and techniques in various facets of the disciplines and refine the methodologies to understand using modern geospatial technologies.

PSO - 3

Apply various conceptual theoretical skills to analyze and address the problems of the society at different scales- global, regional to local and to derive sustainable solutions.

PSO - 4

Interpret and analyze the data to understand the complex geographic reality and enhance the skills level for effective visual portrayal of the spatial and non-spatial results.

PSO - 5

Able to skillfully communicate the knowledge with various state holders of the society and their by enhance their employability

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KANNUR UNIVERSITY

BSc GEOGRAPHY PROGRAMME

WORK AND CREDIT DISTRIBUTION STATEMENT

(BSc: Common English: 22, Additional Common: 16, Core: 56, First Complementary Elective: 12, Second Complementary Elective: 12, Generic Elective: 2)

Semester	Course Title*	Credits	Hours per week	Total Credits	Total Hours
I	ENGLISH	4	5	19	25
	ENGLISH	3	4		
	ADDITIONAL LANGUAGE	4	4		
	GEOMORPHOLOGY	3	2		
	MAP ANALYSIS *	-	2		
	STATISTICS	3	4		
	GEOLOGY	2	4		
II	ENGLISH	4	5	24	25
	ENGLISH	3	4		
	ADDITIONAL LANGUAGE	4	4		
	CLIMATOLOGY	3	2		
	MAP ANALYSIS *	5	2		
	STATISTICS	3	4		
	GEOLOGY	2	4		
III	ENGLISH	4	5	16	25
	ADDITIONAL LANGUAGE	4	5		
	OCEANOGRPHY	3	2		
	MAP INTERPRETATION **	-	3		
	STATISTICS	3	5		
	GEOLOGY	2	5		
IV	ENGLISH	4	5	25	25
	ADDITIONAL LANGUAGE	4	5		
	BIO GEOGRAPHY	3	2		
	MAP INTERPRETATION **	5	3		
	STATISTICS	3	5		

	GEOLOGY	2	5		
	GEOLOGY PRACTICAL	4			
V	HUMAN GEOGRAPHY	3	4	11	25
	GEOGRAPHY OF INDIA	3	4		
	CARTOGRAPHY	3	4		
	MAP PROJECTIONS AND STUDY TOUR ***	-	5		
	DATA TRANSFORMATION AND INTERPRETATION ***	-	4		
	PROJECT****	-	2		
	GENERIC ELECTIVE COURSE	2	2		
VI	WORLD REGIONAL GEOGRAPHY	3	4	25	25
	GEOGRAPHY OF RESOURCES	3	4		
	FUNDAMENTAL OF GEO INFORMATICS	3	4		
	MAP PROJECTIONS AND STUDY TOUR	5	5		
	DATA TRANSFORMATION AND INTERPRETATION	5	6		
	PROJECT	4	2		
	VIVA VOCE	2	-		
Total				120	150

First Complementary Elective: STATISTICS

Second Complementary Elective: GEOLOGY

*Examination at the end of Second Semester

** Examination at the end of Fourth Semester

***Examination at the end of Sixth Semester

****Evaluation at the end of Sixth Semester

Study tour is the part of B.Sc. Geography Programme and is included in Practical 5B11GRYP3

PART A:
GEOGRAPHY CORE COURSE
WORK AND CREDIT DISTRIBUTION
(2019 ADMISSION ONWARDS)

COURSE CODE	COURSE TITLE	SEMESTER	HOURS PER WEEK	CREDIT	EXAM HRS
IB01GRY	GEOMORPHOLOGY	1	2	3	3
	MAP ANALYSIS *	1	2	-	-
2B02GRY	CLIMATOLOGY	2	2	3	3
2B03GRYP1	MAP ANALYSIS	2	2	5	3
3B04GRY	OCEANOGRAPHY	3	2	3	3
	MAP INTERPRETATION **	3	3	-	-
4B05GRY	BIO GEOGRAPHY	4	2	3	3
4B06GRYP2	MAP INTERPRETATION	4	3	5	3
5B07GRY	HUMAN GEOGRAPHY	5	4	3	3
5B08GRY	GEOGRAPHY OF INDIA	5	4	3	3
5B09GRY	CARTOGRAPHY	5	4	3	3
	MAP PROJECTIONS AND STUDY TOUR ***	5	5	-	-
	DATA TRANSFORMATION AND INTERPRETATION ***	5	4	-	-
	PROJECT ****	5	2	-	-
6B10GRY	WORLD REGIONAL GEOGRAPHY	6	4	3	3
6B11GRY	GEOGRAPHY OF RESOURCES	6	4	3	3
6B12GRY	FUNDAMENTAL OF GEO INFORMATICS	6	4	3	3
6B13GRYP3	MAP PROJECTIONS AND STUDY TOUR	6	5	5	3
6B14GRYP4	DATA TRANSFORMATION AND INTERPRETATION	6	6	5	3
6B15GRY Pr	PROJECT	6	2	4	-
6B16GRY Pr	VIVA VOCE	6	-	2	-
	TOTAL			56	

Examination at the end of Second Semester
 ** Examination at the end of Fourth Semester
 ***Examination at the end of Sixth Semester
 ****Evaluation at the end of Sixth Semester

EVALUATION

ASSESSMENT	WEIGHTAGE
EXTERNAL	4
INTERNAL	1

CONTINUOUS INTERNAL ASSESSMENT

COMPONENT	WEIGHTAGE	REMARKS
COMPONENT1 ASSIGNMENT/ PRACTICAL ORIENTED EXERCISE	50 %	
COMPONENT 2 TESTS	50%	

Pattern of Questions (Theory)

- Part A - Short answer (6 questions x 1 Mark each = 6)**
- Answer all questions (6 questions x 1 Mark each = 6)
- Part B - Short Essay (8 questions x 2 Marks each =16)**
- Answer any 6 questions (6 questions x 2Marks each=12)
- Part C - Essay (6 questions x 3 Marks each =18)**
- Answer any 4 questions (4 questions x 3 Marks each=12)
- Part D - Long Essay (4 questions x 5 Marks each =20)**
- Answer any 2 questions (2 questions x 5 Marks each=10)
-
- Total marks including choice - 60
 - Maximum marks of the course - 40

PART A:
GEOGRAPHY CORE COURSE
MARK DISTRIBUTION

(2019 ADMISSION ONWARDS)

COURSE CODE	COURSE TITLE	SEMESTER	INTERNAL MARKS	EXTERNAL MARKS	TOTAL MARKS
			20%	80%	
IB01GRY	GEOMORPHOLOGY	1	10	40	50
	MAP ANALYSIS *	1	-	-	-
2B02GRY	CLIMATOLOGY	2	10	40	50
2B03GRYP1	MAP ANALYSIS	2	15	60	75
3B04GRY	OCEANOGRPHY	3	10	40	50
	MAP INTERPRETATION **	3	-	-	-
4B05GRY	BIO GEOGRAPHY	4	10	40	50
4B06GRYP2	MAP INTERPRETATION	4	15	60	75
5B07GRY	HUMAN GEOGRAPHY	5	10	40	50
5B08GRY	GEOGRAPHY OF INDIA	5	10	40	50
5B09GRY	CARTOGRAPHY	5	10	40	50
	MAP PROJECTIONS AND STUDY TOUR ***	5	-	-	-
	DATA TRANSFORMATION AND INTERPRETATION ***	5	-	-	-
	PROJECT ****	5	-	-	-
5D01GRY	GENERIC ELECTIVE COURSE	5	5	20	25
6B10GRY	WORLD REGIONAL GEOGRAPHY	6	10	40	50
6B11GRY	GEOGRAPHY OF RESOURCES	6	10	40	50
6B12GRY	FUNDAMENTAL OF GEO INFORMATICS	6	10	40	50
6B13GRYP3	MAP PROJECTIONS AND STUDY TOUR	6	15	60	75
6B14GRYP4	DATA TRANSFORMATION AND INTERPRETATION	6	15	60	75
6B15GRY Pr	PROJECT	6	10	40	50
6B16GRY VV	VIVA VOCE	6	5	20	25
	TOTAL		180	720	900

CORE COURSE: GEOMORPHOLOGY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
1	IB01GRY	2	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the basic premises of origin of solar system and the earth
2. Understand the structure and composition of the earth.
3. Understand the endogenic movements of the earth
4. Understand the exogenetic movements of the earth.

Unit - 1.

Earth in the solar system- solar system- origin and evolution of earth- Planetesimal, Tidal wave, Tetra hydral, Gaseous and Nebular hypothesis- Earth as a planet- Movements of earth- Rotation and revolution and effects

Unit - 2

Structure and composition of earth- Interior of the earth- Crust mantle and core- Earthquake waves Continental drift- Plate tectonics- Isostacy- Volcanism- Earth quakes-Rocks- types of rocks- Soils-soil types- soil profiles.

Unit - 3

Endogenic movements- Compression and Tension-Types of folding and faulting- Mountain building – Geosynclines theory-Major land forms- Mountains- Plains- Plateaus- Types

Unit - 4

Exogenetic movements-Weathering- Mass wasting-Gradation process-Agents of gradation- Gradational processes and land forms made by Running water- Wind- Glacier- Sea waves-Underground water.

Books for Study:

1. Dayal, P., (1990). A Text book Geomorphology, Shukla Book Depot, Patna, India.
2. Pitty, A.F., (1982). The Nature of Geomorphology, Methuen and Co. Ltd., London.
3. Thornbury, W. D. (1960). Principles of Geomorphology, John Wiley and Sons, New York.
4. Kale, V. S. and Gupta, A. (2010). Introduction to Geomorphology, Orient Longman, Calcutta.
5. Singh, Savindra. (2002). Geomorphology, Prayag Pustak Bhawan, Allahabad.
6. Small, R.J., (1978). The Study of Landforms: A Text book of Geomorphology, Cambridge University Press, New York.
7. Strahler and Strahler, Introduction to Environment Geosciences, Hamilton

Books for Reference:

1. Rice, R.J. (1986). Fundamentals of Geomorphology, Longman, London.

2. Majid Hussain. ed., (1994). Geomorphology, Perspective in Physical Geography series, Anmol Publications Pvt. Ltd., New Delhi.
3. Worcester, P.G., (1948). A Textbook of Geomorphology, Von Nostrand Reinhold, Company, New York
4. Chorley, R. J., Schumm, S. A. and Sugden, D. E.(1984). Geomorphology, Methuen, London.
5. Spark B. W. (1972). Geomorphology, Longman, New York
6. Strahler A. H and Strahler, A. N. (1992). Modern Physical Geography, John Wiley, New York
7. Fairbridge, R. W. (1968).Encyclopedia of Geomorphology, Reinholdts, New York.
8. Woolridge and Morgan (2015), Physical basis of Geography, Palala Press Indian Edition
9. Monkhouse F J (2009) Physical Geography, Platinum Publication

Web Resources:

1. <https://serc.carleton.edu/NAGTWorkshops/geomorph/index.html>
2. <https://www.physicalgeography.net>
3. <https://www.geol.soc.org.uk>

CORE COURSE: MAP ANALYSIS

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
1 & 2	2B03GRYP1	2 & 2	5	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the types and importance of maps
2. Learn various types of scales
3. Understand the different methods of enlargement and reduction of maps
4. Understand the concept of slopes and profile

Unit- 1

Maps – ancient maps - classification- uses- Importance- preparation of thematic maps of a selected study area- GIS and maps

Unit- 2

Scales – Definition – need and significance- Representation of scales – statement- R.F.-Graphical methods- Diagonal scale, Comparative scale & Time and distance scale.

Unit-3

Enlargement and Reduction of maps – Graphical methods- triangular and square methods- Instrumental methods

Unit-4

Concept of slopes – Drawing simple profiles from contour maps - Gradient – Significance of Horizontal & vertical scales – Calculation of slope and gradient from topographic sheets.

Books for Study

1. Zulfequar Ahmad Khan M.D (1998), Text book of Practical Geography, concept Publishing company
2. Siya Ram Sharma (2008), Practical Geography, Murali Lal & Sons Pvt.Ltd
3. Singh L.R (2009), Fundamentals of Practical Geography, Sharda Pustak Bhavan
4. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.

Books for Reference

1. Singh R.L & Rana P.B. Singh(2005, Elements of Practical geography, Kalyani Publishers
2. Bangulia A.M. (2006), Practical Geography, Anmol publishers Pvt Ltd
3. Ashish Sarkar (2009), Practical Geography - A systematic approach. Orient Blackswan Pvt Ltd
4. Monk House, F.J. & Wilkinson, H.R. (1973) Maps and Diagrams, Methuen & Co Ltd, London.
5. Saha, P. & Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd., Kolkatta.

Web Resources

1. <https://www.physicalgeography.net>
2. <https://www.geolounge.com>
3. <https://www.axismaps.com>
4. <https://www.mohpi.nic.in>

CORE COURSE: CLIMATOLOGY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
2	2B02GRY	2	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the structure and composition of the atmosphere.
2. Recognise the controlling factors and distributional aspects of atmosphere.
3. Understand the elements of hydrological cycle.
4. Examine the significance of air masses and associate their relationships and also human influence on climate.

Unit - 1

Climatology as a branch of geography– Definition; Atmosphere-Significance, Composition and structure; Weather and Climate; Climatic elements. Isolation- Characteristics, Controlling factors; Temperature-controlling factors; distribution- Horizontal and vertical; Heat budget; Range of temperature- Diurnal, Seasonal and Annual, Temperature inversion.

Unit - 2

Atmospheric pressure- Controlling factors; distribution- Vertical, Horizontal; Surface Pressure belts; Winds- Controlling factors. Types of winds-planetary winds, Seasonal winds, Local winds; monsoon- Formation and characteristics.

Unit - 3

Humidity- Significance of water vapour; Relative humidity; Hydrologic cycle; Evaporation- controlling factors; condensation-forms ; Fog- formation and types; Clouds - Formation; significance to weather; Major clouds; Precipitation types.

Unit - 4

Air masses- Definition; Source region; Fronts-definition; Formation; Atmospheric disturbances- cyclones and anticyclones, Characteristics- Human influence on climate; Ozone depletion, greenhouse effect and global warming.

Books for Study:

1. Critchfield, H. J. (1998). General Climatology, Prentice Hall, Englewood Cliffs
2. Lal, D. S. (1998). Climatology, Chaitanya Publishing House, Allahabad
3. Smith, K., (1975). Principles of Applied Climatology, McGraw Hill Book Co., London.
4. Trewartha, G.T., (1968). An Introduction to Climate, McGraw Hill Book Co., New York.
5. Woolridge and Morgan (2015), Physical basis of Geography, Palala Press Indian Edition
6. Monkhouse F J (2009) Physical Geography, Platinum Publication

Books for Reference:

1. Ayoade, J.O. (1983): Introduction to Climatology for the Tropics, John Wiley and Sons Ltd., New York
2. Collings, V.K. (1987). Weather, Radar and Flood Forecasting, John Wiley and Sons, New York.
3. Thornthwaite C.W.(1948).An Approach toward a Rational Classification of Climate, in GeographyReview.
4. Oke T.R., Mills G., Christen A. and Voogy J.A., (2017), Urban Climates, Cambridge University Press, Cambridge.
5. Menon, P.A. (1989). Our Weather, National Book Trust, New Delhi.
6. Navarra, J. G. (1979). Atmosphere, Weather and Climate, W. B. Saunders Company, Philadelphia
7. Jones and Bartlett Learning (2017).4theditions, Climatology, Louisiana State University, Baton Rouge.

Web Resources:

1. <https://swayam.gov.in/course/4242-physical-geography-ii-climatology-oceanography>
2. <https://www.britannica.com/science/climatology>
3. <https://www.ncdc.noaa.gov/>
4. <http://www.realclimate.org/>
5. <https://serc.carleton.edu/NAGTWorkshops/complexsystems/courses/42415.html>
6. <https://www.loc.gov/rr/scitech/SciRefGuides/weather.html>
7. <http://www.globalissues.org/issue/178/climate-change-and-global-warming>
8. <https://www.skymetweather.com/>
9. <http://www.imd.gov.in/Welcome%20To%20IMD/Welcome.php>
10. <https://www.windy.com>

CORE COURSE: OCEANOGRAPHY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
3	3B04GRY	2	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the significance of oceanography
2. Understand the distribution of sea surface temperature, pressure and salinity
3. Understand the ocean dynamics.
4. Recognise the significance of marine life, resources and conservations.

Unit - 1

Oceans and Oceanography – Relevance of Geography in earth and atmospheric sciences - Scientific expeditions- Surface configuration of ocean floor- Indian, Atlantic and Pacific oceans.

Unit - 2

Sea surface temperature - factors and distribution- Oceanic and Sea salinity; factors and distribution.

Unit - 3

Oceanic movements: - Waves, tides and currents. Currents in Atlantic, Pacific and Indian Oceans.

Unit - 4

Coral reefs formation and types, marine deposits and mineral resources. Marine pollution, Marine conservation

Books for Study:

1. Sharma, R.C. and Vatal, M., (1970). Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
2. Thurman, H.V. and Trujillo, A. P. (1997). Introductory Oceanography, Prentice Hall, New Jersey.
3. Pinet, P.R. (2009). Invitation to Oceanography, Jones and Bartlett Publishers, Boston.
4. Joseph, W.S. and Parish, H.I. (1974). Introductory Oceanography, McGraw Hill, Tokyo.
5. Gross, G.M. (1990). Oceanography, Macmillan Publication, New York.
6. Garrison, T. (1993). Oceanography - An Invitation to Marine Science, Wadsworth Publication Co., California.
7. Ricardo Beiras (2018) Marine Pollution , Elsevier

Books for Reference:

1. Stowe, K.S. (1979). Ocean Science, John Wiley and Sons, New York.

2. Christopherson, R. W. and Birkeland, G. H. (2012). Geosystems: An Introduction to Physical Geography (8th Edition), Pearson Education, New Jersey.
3. Strahler, A.H. and Strahler, A.N. (2001). Modern Physical Geography (4/E), John Wiley and Sons, Inc., New York.
4. Khullar, D.R. (2012). Physical Geography, Kalyani Publishers, New Delhi.
5. Das Gupta, A. and Kapoor, A.N. (2001). Principles of Physical Geography, S.C. Chand and Company Ltd. New Delhi.
6. Rachel Carson, (1955), The edge of the Sea, Mariner Books
7. Rachel Carson (1951). The sea around us, Oxford.

Web Resources:

1. <https://swayam.gov.in/course/4242-physical-geography-ii-climatology-oceanography>
2. <https://www.theatlantic.com/photo/2014/12/ten-years-since-the-2004-indian-oceansunami/100878>
3. https://www.cengage.com/resource_uploads/static_resources/0495112860/16105/Ch01.html
4. http://www.uwosh.edu/faculty_staff/hiatt/Teaching/328/328_Links.html
5. <https://nctr.pmel.noaa.gov/>
6. <https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml>
7. <https://www.icsf.net/>

CORE COURSE: MAP INTERPRETATION

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
3 & 4	4B06GRYP2	3 & 3	5	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the elements and numbering of SOI toposheets
2. Recognise the various methods of representing landform feature
3. Learn topographical map interpretation
4. Learn interpreting Indian daily weather report

Unit - 1

Introduction of Survey of India Toposheets – Numbering and Grid references of toposheets – New methods of toposheet Indexing- Conventional Signs and symbols.

Unit - 2

Representation of relief – Spot heights, Hachures, Hill shading, Layer tints & colours– Representation of important landform features By contours - Concave slope, convex slope, undulating slope, Uniform slope, Terraced slope, Conical hill, Plateau, Plain with knoll, Spur, Cliff, Waterfall, Delta, Estuary, V-shaped valley, U-shaped valley & Gorges.

Unit -3

Study and interpretation of SOI toposheets of different scales –Marginal information Interpretation of toposheets - Physical and Cultural features with sketches & cross sections. Identification of landforms

Unit- 4

Weather maps- signs and symbols in weather maps - Study & Interpretation of weather maps – Pressure gradient, Departure of temperature from maximum & minimum

Books for Study

1. Zulfequar Ahmad Khan M.D (1998), Text book of Practical Geography, concept Publishing company
2. Siya Ram Sharma (2008), Practical Geography, Murali Lal & Sons Pvt.Ltd
3. Singh L.R (2009), Fundamentals of Practical Geography, Sharda Pustak Bhavan
4. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.

Books for Reference

1. Singh R.L & Rana P.B. Singh(2005), Elements of Practical geography, Kalyani Publishers
2. Bangulia A.M. (2006), Practical Geography, Anmol publishers Pvt Ltd

3. Ashish Sarkar (2009), Practical Geography - A systematic approach. Orient Blackswan Pvt Ltd
4. Monk House, F.J. & Wilkinson, H.R. (1973) Maps and Diagrams, Methuen & Co Ltd, London.
5. Saha, P. & Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd., Kolkatta.

Web Resources

1. <https://www.physicalgeography.net>
2. <https://www.geolounge.com>
3. <https://www.axismaps.com>
4. <https://www.mohpi.nic.in>

CORE COURSE: BIOGEOGRAPHY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
4	4B05GRY	2	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

- 1 Understand the elements of biogeography.
- 2 Understand the basics and consequence of ecosystem
- 3 Understand the need for the sustainability and biodiversity
- 4 Understand the threats to biodiversity conservation measures in India.

Unit- 1

Definition, scope and significance of Biogeography; Basic Ecological Principles and Darwin's theory of Evolution.

Unit – 2

Ecosystem, structure and function, Community, Gene-pool and habitat; Ecotone and ecological niche, Concepts of Biome, distribution of flora and fauna.

Unit – 3

Bio-diversity- concept, Types, problems, Conservation measures, biodiversity and sustainable management.

Unit – 4

Bio-geographical Classification of India – Biodiversity Hotspots in India – Biodiversity threats and conservation strategies in India, Ecological regions of India in relation to their plant and animal life, their interrelations, problems, conservation and management: (a) Mangrove (b) Tropical rainforest (c) Desert (d) Mountain (e) Fresh water and marine.

Books for study

1. MacDonald, G. (2001), Biogeography: Introduction to space, time and life. Wiley.
2. Eugene Pleasants Odum (1983), Basic Ecology. Saunders College Pub; and digital edition, 2011, The University of Michigan.
3. G. Tyler Miller and Scott Spoolma. (2014). Essentials of Ecology. Cengage Learning.
4. Swarnim K (2012), Climate, Forest, Biodiversity and Desert, Surendra Publications, New Delhi
5. Gerald G Marten. (2008), Human Ecology: Basic Concepts for Sustainable Development. Taylor and Francis. USA.
6. Frank Evers Beddard. (2008) A Text Book of Zoogeography. BiblioBazaar. Joy T. (1993) Biogeography: A Study of Plants in the Ecosphere. III edition. Routledge Publication.
7. Robinsons H ((1972), Biogeography Aspect Geographies , Mcdonald and Evans

Books for References

1. Kanchan Ratna Chopra, Preeti Kapuria, Pushpam Kumar. (2009), Biodiversity, land-use change, and human well-being: a study of aquaculture in the Indian Sundarbans,. OUP.
2. All India Congress of Zoology. (2008). Biodiversity and Human Welfare. Zoology.
3. B.R. Ramesh & Rajan Gurukkal. (2007). Forest Landscapes of the Southern Western Ghats, India Biodiversity, Human Ecology and Management Strategies. French Institute of Pondicherry.
4. Darwin, C.D. (1859), On the origin of species. John Murray. Chapter 1. Online via the Project Gutenberg. Available at <http://www.literature.org/authors/darwin-charles/the-origin-of-species-6th-edition/introduction.html>
5. World Commission On Environment and Development. (1987), Our Common Future. Oxford University Press.
6. Zimmerer K S.(2009), Biodiversity, Noel Castree, et. al (eds), A Companion to Environmental Geography. Wiley & Sons.
7. Peter John Ucko, G. W. Dimbleby (eds.). (2007), The Domestication and Exploitation of Plants and Animals. Transactions Publishers.
8. David Norton and Nick Reid. (2013), Nature and Farming: Sustaining Native Biodiversity in Agricultural Landscapes. CSIRO Publishing.

Web resources

1. <http://ncscm.res.in/>
2. <https://www.sacon.in/>
3. <https://www.kfri.res.in/>
4. <https://www.atree.org/>
5. <https://www.iisc.ac.in/>
6. <http://www.ifpindia.org/the-institute>

CORE COURSE: HUMAN GEOGRAPHY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5B07GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand evolution and basic concepts of human geography
2. Understand the population dynamics of the world
3. Understand the evolution of human settlements and details of rural settlements
4. Understand the dynamics of urban settlements.

Unit - 1

Human Geography – Basic concepts – Space and Place; Major Paradigms; Contributions of Alexander Von Humboldt, Carl Ritter, Friedrich Ratzel, Vidal de- La Blache, Jean Brunches, Ellen C Semple, Isiah Bowman, Ellsworth Huntinhton, Griffith Taylor, Halfford John Mackinder, A.J.Herbertson & Peter Hagget

Unit - 2

Population Dynamics –World distribution pattern - factors influencing spatial distribution -physical, economic and social factors- Concepts of over population, under population and optimum population. Zero population growth: Population theory: Malthusian theory - Demographic Transition model - population problems- population policies.

Unit - 3

Human Settlements Approaches –Concepts - History and Evolution of rural settlements in the world – Factors of rural settlement growth: Effect of physical environment on rural settlement pattern- Characteristics of rural settlements

Unit – 4

Urban Settlements – Evolution, Growth, Trend and Pattern - Census Classification Indian Cities. Urban Development and Planning in Independent India: Sustainable Urban Development; Urban issues – Problems of Housing, Civic Amenities and Urban Environment - 74 the Amendment of the Constitution of India, Smart cities, Urbanization in Kerala.

Book for references

1. S.K.Shelar (2012), Human geography, ChandralokPrakashan
2. Amal Datta (2003), Human Migration a social phenomenon, Mittal publication
3. K.Chakraworthy (2006), Population Geography, Mohit Publication

4. R.Jagannathan (2012), Human Geography, Dominant Publishers and Distributers
5. Vaishali Singh (2011), Human Geography concepts and Issues, Alfa Publications
6. S.K.Shelar (2012), Human Geography, ChandralokPrakashan
7. L.R.Singh (2005), Fundamentals of Human Geography, ShardaPustakBhawan
8. Peter Danils et al, (2003), Human Geography, Pearson Publishers
9. Book for References
10. Hagget Peter(1979) Geography A Modern Synthesis Harper & Row Publishers, London University, Dept. of Geography, Varanasi.
11. Perpillou A (1966), Human Geography; Longmans, London
12. Mayer H M & Kohn C F(1967)ed. Readings in Urban Geography; Chicago Printing Press, Chicago,

Books for Study

1. Carter Harold(1972)The Study of Urban Geography, Edward Arnold, London,
2. Johnson J H; Urban Geography (1967), An Introductory Analysis, Pergamon Press,London.
3. Goh Cheng Leong & Gillian C Morgan(2004), Human and Economic Geography; Oxford University Press Chennai/ Delhi
4. Singh. R L. (1972), Readings in Rural Settlement Geography; Banaras Hindu
5. Money D C (1972), Patterns of Settlements; Even Brothers , London
6. Misra H N (1981), ed. Rural Geography, Heritage Publishers, New Delhi
7. Bose Ashish, India's Urbanisation 1947-2000; Tata-McGraw Hill, New Delhi.

Web resources

1. <https://www.cia.gov>
2. <https://www.thoughtco.com/geography-4133035>

CORE COURSE: GEOGRAPHY OF INDIA

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5B08GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

- 1 Understand the geographical background and natural resources.
- 2 Understand the irrigation and agricultural developments.
- 3 Recognise the importance of natural resources.
- 4 Understand the population distribution and transportation network in India.

Unit - 1

India's strategic location in Asia and Indian Ocean- India a land of unity in diversity- physiographic regions- drainage system of India and their functional significance-irrigation- multipurpose projects- climate: seasonal and regional distribution, Monsoon, Western disturbance and Norwesters- Famine and floods.

Unit - 2

Soil types of India; distribution and their characteristics- vegetation types and distribution- wildlife, mineral resources; iron ore, manganese, copper, bauxite, non-metallic minerals, energy resources; coal, petroleum, natural gas, hydroelectricity, thermal electricity, atomic energy and non-conventional energy.

Unit - 3

Agriculture; characteristics, spatial pattern, problems, agricultural regions and development strategies- livestock- fisheries- Industries; location and distribution of major industries, industrial regions.

Unit - 4

Spatial distribution of population and density- growth of population- population composition- urbanization- migration- population policies and problems- language and religion- transport; roadways, railways, airways and inland water transport- national waterways.

Book for study

1. Gopal Singh (1976), Geography of India, Atma Ram, India.
2. Nag, P. and Roy, P. (1998), Geography of India, Concept Publications, New Delhi.
3. Tirtha, R. (1996), Geography of India, Rawat Publications, Jaipur.
4. Majid Hussain (2009) Geography of India, McGraw Hill India

Book for References

1. Memoria, C. B. (1984), Economic and Commercial Geography of India, Shival Agarwal Publication Co. Agra.
2. Gopal Singh (1976), Geography of India, Atma Ram, India.
3. Sharma, T. C. and Continho (1988), Economic and Commercial Geography of India, Vikas Publishing House, New Delhi.
4. Khullar, D. (2000), India-A Comprehensive Geography, Kalyani publishers, New Delhi.
5. Nag, P. and Roy, P. (1998), Geography of India, Concept Publications, New Delhi.
6. Tirtha, R. (1996), Geography of India, Rawat Publications, Jaipur.
7. India, (2014), Year Book, Ministry of Information and Broadcasting, Govt. of India.
8. Rajaram K (2015) Geography Of India, Spectrum Books (P) Ltd

Web References

1. <https://www.moes.gov.in/>
2. <http://moef.gov.in/>
3. <https://mib.gov.in/>
4. <https://www.ncess.gov.in/>
5. <http://www.cseindia.org/>

CORE COURSE: CARTOGRAPHY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5B09GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the evolution and basics of cartography
2. Understand the basics of map making.
3. Understand the basics of map design and layout.
4. Understand map reproduction and recent development.

Unit-1

Cartography –Nature and scope – Historical development of Cartography, Colonial intension in making survey of India topographical maps – Map functions and types - Properties of maps - Earth as a cartographic problem; scale, projections, coordinate systems, datum, geoid, ellipsoid and spheroid. - Map projections and their uses.

Unit -2

Map data– Sources of data – Data collection and classification –Compilation and generalization of map information – Compilation processes – Principles of Generalization; Map symbolization - point, line and area symbols – Qualitative and quantitative methods.

Unit -3

Map design and Layout – Components and Principles of map design – Constraints in map design – Map format; Lettering and Typography – Elements of typographic design, methods of lettering, Mechanics of map construction, Mapping the terrain, climatic data, Socio - Economic data; Thematic and complex mapping; Atlas mapping, National Atlas of India, Topographic mapping; Construction of special purpose maps.

Unit-4

Map reproduction - Methods and techniques of map reproduction – Automation in cartography - Geographic Information Systems and Maps – Web map design – Geovisualization.

Books for Study:

1. Robinson Arthur H et al, (2010) Elements of Cartography, 6th edition, Wiley India pvt. Ltd.

2. Misra R P and Ramesh A (1969), Fundamentals of Cartography, Concept Publishing Company, New Delhi
3. Rampal K K(1993), Mapping and Compilation, Concept Publishing Company, New Delhi.
4. Monkhouse FJ and Wilkinson- Maps and Diagrams, Muthen& Col Ltd, London

Books for References

1. Prithvish Nag (1992): Thematic Cartography and Remote Sensing, Concept Publishing Co. New Delhi.
2. Monmonier M S (1982) : Computer Assisted Cartography: Principles and Prospects, Englewood Cliffs NJ , Prentice Hall.
Nesbitt A (1957), The History and Technique of Lettering, Dover Publications, New York
3. John Wiley and sons Inc, New York.
Longely Paul A et al, (2015) Geographic Information Science and Systems, 4th edition,
4. Anson TW (1988), Basic Cartography for Students and Technicians, Elsevier, New York
5. Brown L.A (1949), Maps and Map Makers, Batsford, London
6. Keates. J.S (1982), Understanding Maps, John Wiley & Sons, New York
7. Menno Jan Kraak, Ferjan Ormeling (2004): Cartography Visualization of Geospatial Data, Pearson Education.

Web Resources

1. http://www.library.yale.edu/MapColl/gis_workshop_materials.html
2. <https://www.geog.psu.edu/>
3. http://www.wvu.edu/huxley/spatial/tut/cart/cart_arcgis.htm
4. <http://andywoodruff.com/>
5. <https://www.cartographersguild.com>
6. <https://www.esri.com/arcgis-blog/products/product/mapping/favorite-tools-and-resources-for-cartographers/>
7. <https://makingmaps.net/>
8. NRSA
9. ISRO
10. Google maps/Earth
11. Bhuvan
12. SOI/NATMO

CORE COURSE: MAP PROJECTIONS AND STUDY TOUR

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5 & 6	6B13GRYP3	5 & 5	5	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the basics of coordinate and different types of projection
2. Learn the significance and construction of conical projection
3. Learn the significance and construction of conical projection
4. Understand the importance of field survey

Unit - 1

Geographic co-ordinates - latitude and longitudes- Map Projections –Principles- classifications –Uses of map projections. Graphical construction of Zenithal Projections - General properties-Equi-distant & Equal area projection – Gnomonic, Stereographic, Orthographic.

Unit - 2

Graphical construction of Conical projection- general properties. Construction of graticules with various conical projections- Conical – Simple conical, Two standard parallel, Bonne’s, Polyconic & International projection

Unit - 3

Graphical construction of cylindrical projection- General properties - Cylindrical – Equi-distant, Equal-area & Mercator Projections, Conventional Projection-Sinusoidal & Mollweide’s Projection.

Unit – 4

Study Tour - Any places within South India, duration of which is limited to 7 days.

Books for Study

1. Zulfequar Ahmad Khan M.D (1998), Text book of Practical Geography,concept Pubishing company
2. Siya Ram Sharma (2008), Practical Geography, Murali Lal & Sons Pvt.Ltd
3. Singh L.R (2009), Fundamentals of Practical Geography, Sharda Pustak Bhavan
4. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.

Books for Reference

1. Singh R.L & Rana P.B. Singh(2005, Elements of Practical geography, Kalyani Publishers
2. Bangulia A.M. (2006), Practical Geography, Anmol publishers Pvt Ltd
3. Ashish Sarkar (2009), Practical Geography - A systematic approach. Orient Blackswan Pvt Ltd
4. Monk House, F.J. & Wilkinson, H.R. (1973) Maps and Diagrams, Methuen & Co Ltd, London.
5. Saha, P. &Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd., Kolkatta.

Web Resources

- 1 <https://www.physicalgeography.net>
- 2 <https://www.geolounge.com>
- 3 <https://www.axismaps.com>
- 4 <https://www.mohpi.nic.in>

CORE COURSE: DATA TRANSFORMATION AND INTERPRETATION

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5&6	6B14GRYP4	4&6	5	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the importance of construction of various statistical diagram
2. Understand the importance of construction of various climatic diagram
3. Learn working procedure and applicability of data gathered from weather instruments
4. Understand and prepare plan of various methods by field survey

Unit - 1

Construction of statistical diagrams: Line graph & poly graph- Simple and compound bar diagram - Band graph & Ergo graph - Wheel & Sector diagram – Rectangular diagram- Spheres –Rings – Sten-de-geer & Stil Gen Baur -Pyramid diagrams.

Unit - 2

Construction of climatic diagrams: Wind Rose diagrams- Star diagrams- Hythergraph- Taylors Climograph- water balance graph.

Unit - 3

Study of weather instruments: (i) Rain gauge (ii) Wind wane (iii) Anemometer (iv)Mercury barometer (v) Fortin's barometer (vi) Thermometer – Wet and dry bulb Thermometer.

Unit - 4

Surveying: Chain & Tape- Survey basic principles – Field book - Preparation of plans- Prismatic Compass Survey – Open & Closed traverse- Plane Table – Radiation and Intersection methods-Indian Clinometer – Calculation of height.

Books for Study

1. Zulfequar Ahmad Khan M.D (1998), Text book of Practical Geography,concept Pubishing company
2. Siya Ram Sharma (2008), Practical Geography, Murali Lal & Sons Pvt.Ltd
3. Singh L.R (2009), Fundamentals of Practical Geography, Sharda Pustak Bhavan
4. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing House, Ahmedabad.

Books for Reference

1. Singh R.L & Rana P.B. Singh(2005, Elements of Practical geography, Kalyani Publishers
2. Bangulia A.M. (2006), Practical Geography, Anmol publishers Pvt Ltd

3. Ashish Sarkar (2009), Practical Geography - A systematic approach. Orient Blackswan Pvt Ltd
4. Monk House, F.J. & Wilkinson, H.R. (1973) Maps and Diagrams, Methuen & Co Ltd, London.
5. Saha, P. & Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd., Kolkatta.

Web Resources

1. <https://www.physicalgeography.net>
2. <https://www.geolounge.com>
3. <https://www.axismaps.com>
4. <https://www.mohpi.nic.in>

CORE COURSE: PROJECT

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5&6	6B15GRYPr	2 & 2	4	

Course Outcomes:

After the completion of the project work, the students will have the ability to:

1. Design and execute a basic research project
2. Understand the procedures involved in a project
3. Understand basics of field data collection
4. Able to communicate the results of a research project

BSc Geography Project report (a minimum of 25 pages) at the fifth and sixth semester of the Programme (6 Credits) to demonstrate a student's ability to formulate a geographic research problem, collect and analyze relevant data or appropriate literature, arrive at logical conclusions, and to present the entire exercise at a seminar in the department. BSc Geography Projects can be conducted in groups.

The Report of the Project work should consists of

- a. Define and defend the purpose of the project.
- b. Demonstrate methodology.
- c. Demonstrate an appropriate approach to analysis.
- d. Demonstrate a relevant conclusion.

Essential Readings

1. Baxter, L., Hughes, C. & Tight, M. (1996) How to research. Open University Press.
2. Bell, J. (1993) Doing your research project. Open University Press.
3. Bird, J. (1993) The changing worlds of geography: a guide to concepts and methods. Clarendon
4. Clifford, N. & Valentine, G., (2003) Key Methods in Geography. Sage.
5. Cooper, B.M. (1964) Writing technical reports. Penguin.
6. Creswell, J.W. (1994) Research design: qualitative and quantitative methods. Sage.
7. Daniel R. Montello and Paul Sutton, (2006), An Introduction to Scientific Research Methods in Geography and Environmental Studies
8. Haines-Young, R.H. & Petch, J.R. (1986) Physical Geography: its nature and methods. Harper.
9. Johnston, R. (1991) Geography and geographers. 4th edition. Arnold.
10. Kate L. Turabian, (2018), A Manual for Writers of Research Papers, Theses, and Dissertations, Eighth Edition: Chicago Style for Students and Researchers (Chicago Guides to Writing, Editing, and Publishing) Eighth Edition Press.

CORE COURSE: WORLD REGIONAL GEOGRAPHY

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
6	6B10GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

- 1 Understand the various types of regions
- 2 Recognize the major natural regions of the world
- 3 Associate the general idea on selected regions
- 4 Acquire the regional facts of Indian neighbouring countries

Unit - 1

World Regional Geography – Concept of Region and Types – Natural, Cultural and Functional Regions.

Unit - 2

Major Natural Regions of the World – detailed understanding of following regions: Tropical Rainforests, Tropical Wet and Dry Regions, Tropical Deserts, Mediterranean Region, Temperate Grasslands, Taiga and Tundra.

Unit - 3

Overview of selected regions of the world: The United States and Canada; Latin America and the Caribbean; Europe; Northern Eurasia; Central Asia and Afghanistan; The Middle East and North Africa; Africa South of the Sahara; South Asia; East Asia; Australia, New Zealand, and the Pacific Islands.

Unit - 4

Systematic regional study of selected neighbouring countries of India – Pakistan, China, Bangladesh, Nepal, Bhutan, Myanmar and Sri Lanka.

Books for Study

1. Oskar Hermann Christian Spate and Andrew Thomas Amos Learmonth, et.al (1972) India and Pakistan: A General and Regional Geography. Methuen.
2. Douglas L. Johnson, David Leslie Clawson, et.al. (2009), World Regional Geography: A Development Approach. Pearson Prentice Hall.
3. Joseph Hobbs. (2008), World Regional Geography. Cengage Learning.
4. H. J. De Blij and Peter O. Muller, et. al. (2010), The World Today: Concepts and Regions in Geography. John Wiley and Sons.
5. Heintzelman and Highsmith , (1959) World Regional Geography, Prentice Hall Inc

Books for References

1. Maleeha Lodhi. (2012), Pakistan Beyond the Crisis State. Oxford University Press, Haroun Rashid (1977), Geography of Bangladesh. University Press, University of Michigan.
2. Nanda Pethiyagoda Wanasundera (2002) Sri Lanka: Cultures of the world. Marshall Cavendish.
3. Upendra Man Malla Ed. (1967), A brief geography of Nepal. Published by His Majesty's Government, Ministry of Information and Broadcasting, Dept. of Publicity.
4. Joseph Hobbs. (2012), e-Study Guide for: Fundamentals of World Regional Geography, Cram101 Textbook Reviews.
5. Jill Stackhouse(2011), Spatial Connections: World Regional Geography. University Readers.
6. John Peter Cole. (1996), Geography of the World's Major Regions. Psychology Press. Dominick A. DellaSala. (2011), Temperate and Boreal Rainforests of the World: Ecology and Conservation. Island Press.
7. Ted Smart, Rupert Matthews. (1990), Tropical Rainforests of the World. The Book People.
8. Richard T. Corlett, Richard B. Primack. (2011) Tropical Rain Forests: An Ecological and Biogeographical Comparison. John Wiley & Sons.
9. Robert M. M. Crawford. (2013) Tundra-Taiga Biology. Oxford University Press.

Web Resources

1. <http://www.yourarticlelibrary.com>
2. <http://www.countrystudy.us>

CORE COURSE: GEOGRAPHY OF RESOURCES

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
6	6B11GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

- 1 Understand the natural resources
- 2 Understand the mineral resources
- 3 Understand the agricultural resources
- 4 Recognize the conservation of resources

Unit – 1

Nature and trends of Resource Geography - Significance of resources - Classification of resources - Renewable and Non renewable resources.

Unit - 2

Minerals and industries- World distribution and production of minerals- Iron Ore, Bauxite, Copper, Energy Resources-Coal, Petroleum, Atomic and Hydel, Industries:- Theories of Industrial Location- Weber and Losch -Industries - Iron and steel and Textiles- Transportation - Railways, Inland Waterways, Sea routes ,Airways and pipeline.

Unit – 3

Agriculture- Agriculture systems of the world- Distribution and production of Wheat, Cotton, Sugarcane, Tea, Coffee and Jute- Marine resources and Fishing grounds- Animals resources.

Unit – 4

Non Conventional energy resources – Wind, Solar and tides. Resource conservation - Concept of Sustainable development, approaches and goals.

Book of Study

1. Leong G C, Morgan G C (2009), 'Human and Economic Geography', Oxford University Press, the U.K.
2. Roy Prithwish, (2001)' Economic Geography: A Study of Resources', New Central Book Agency Pvt. Ltd.
3. Alka Goutham (2013), Geography of Resources, Exploration, Conservation and Management, Sharada Pusthak Bhavan , New Delhi.
4. *Khanna K. K. and Gupta , V. K. , Economic & Commercial Geography*, Sultan Chand & Sons.

Book of References

1. Beder Sharon (1996) 'The Nature of Sustainable Development', , Scribe, Newhampshire.

2. Pearce David, and Markandaya Anil et al (1989) 'Blueprint for a Green Economy' , , Earthscan Publications Ltd., London.
3. Jacobs Michael,(1991) 'The Green Economy: Environment, Sustainable Development and the Politics of the Future, Pluto Press, London.
4. Alexander J W, Gibson L J, 'Economic Geography'.

Web Resource

1. <https://sustainabledevelopment.un.org/?menu=1300>
2. <https://www.editors.eol.org>

CORE COURSE: FUNDAMENTALS OF GEOINFORMATICS

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
6	6B12GRY	4	3	3

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the basics of geo-informatics.
2. Understand the concepts, theories and techniques in remote sensing
3. Understand the basics of GNSS
4. Understand the application of geo spatial technology

Unit I:

Geo-Informatics, Introduction and Definition - Concept and components- Evolution of mapping technologies trends in mapping - Need and significance.

Unit II:

Remote sensing; evolution and scope – Remote sensing principles – Stages of remote sensing - EMR and EMS - Types of Remote Sensing – Sensor resolutions – Basic concepts of visible, infrared, thermal and microwave remote sensing – Remote sensing data products; aerial photos and satellite imageries - Interpretation techniques and recognition elements - Application of remote sensing – Advantages – Indian space programmes.

Unit III:

Global Navigation Satellite System; Salient Features - Global navigation satellite systems and Regional navigation satellite systems –Components and functional segments of GNSS Sources of errors – IRNSS - Application areas of GNSS.

Unit IV:

Geographical Information system - Components – Modelling the real world; objects and phenomenas – Raster data model – Georeferencing - Vector data model – Topology – Data collection; Primary and Secondary geographic data capture, Obtaining data from external sources – Metadata - Database Management System; relational and object oriented RDBMS – Spatial analysis; Buffer, Overlay and Network Analysis - Spatial Interpolation - Application areas of GIS.

Books for Study:

1. Lillesand, T.M. and Kiefer, R.W. (2015) Remote Sensing and Image Interpretation. 7th Edition, Wiley, New York.

2. Basudeb Bhatta, (2011) Remote Sensing and GIS, 2nd edition, Oxford University Press, New Delhi.
3. Lo C P and Yeung Albert K W. (2004), Concepts and Techniques of Geographic Information Systems, Prentice Hall of India Pvt.ltd, New Delhi.
4. Chang Kang-tsung, (2008) Introduction to Geographic Information Systems, 4th edition, Tata McGraw-Hill Publishing Company ltd. New Delhi.

Books for Reference:

1. Robinson Arthur H et al, (2010) Elements of Cartography, 6th edition, Wiley India pvt. Ltd.
2. Longely Paul A et al, (2015) Geographic Information Science and Systems, 4th edition, John Wiley and sons Inc, New York.
3. Demers. Michael N, (2014) Fundamentals of Geographic Information Systems, 4th edition, John Wiley and sons Inc, New Delhi.
4. Heywood Ian et al, (2005) An introduction to Geographical Information Systems, 2nd edition, Pearson Education pvt.ltd. Delhi.
5. Bernhardsen Tor, (2011), 3rd edition, Geographic Information Systems, An introduction. John Wiley and sons Inc, N.Y.

Web Resources

1. <https://arset.gsfc.nasa.gov/>
2. <https://rsc.umn.edu/>
3. <https://www.isprs.org/>
4. http://www.euromap.de/docs/doc_001.html
5. <http://dst-iget.in/>
6. <https://gis.e-education.psu.edu/>
7. <https://www.nrcan.gc.ca/earth-sciences/geomatics/satellite-imagery-air-photos/air-photos/about-aerial-photography/9687>
8. http://planet.botany.uwc.ac.za/nisl/gis/gis_primer/page_27.htm
9. https://serc.carleton.edu/research_education/geopad/imagery_data.html
10. https://nptel.ac.in/courses/105104100/lectureE_36/E_36_5.htm

CORE COURSE: VIVA VOCE

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
6	6B16GRYVV		2	

PART B:

**GEOGRAPHY PROGRAMME OFFERED GENERIC ELECTIVE COURSES
WORK AND CREDIT DISTRIBUTION (2019 ADMISSION ONWARDS)**

COURSE CODE	COURSE TITLE	SEMESTER	HOURS PER WEEK	CREDIT	EXAM HOURS
5D01GRY	MAP STUDIES	V	2	2	2
5D02GRY	GEOINFORMATICS	V	2	2	2
5D03GRY	GEOGRAPHY OF INDIA	V	2	2	2
5D04GRY	TOURISM MANAGEMENT	V	2	2	2
5D05GRY	NATURAL DISASTER MANAGEMENT	V	2	2	2

EVALUATION

ASSESSMENT	WEIGHTAGE	MARKS
EXTERNAL	4	20
INTERNAL	1	5

INTERNAL ASSESSMENT

COMPONENT *	WEIGHTAGE	REMARKS
COMPONENT 1 ASSIGNMENT	50%	
COMPONENT 2 TEST	50%	

Pattern of Questions Generic Elective Course:

- Part A - Short answer** (6 questions x Mark 1 each= 6)
- **Answer all questions** (6 questions x Mark 1 each = 6)
- Part B - Short Essay** (6 questions x Marks 2 each =12)
- **Answer any 4 questions** (4 questions x Marks 2 each=8)
- Part C - Essay** (2 questions x Marks 6 each =12)
- **Answer any 1 question** (1 question x Marks 6 each=6)
- **Total marks including choice -30**
 - **Maximum marks of the course-20**

GENERIC ELECTIVE COURSE I: MAP STUDIES

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5D01GRY	2	2	2

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the maps and its characteristics
2. Understand the basic elements of map
3. Understand the importance of topographical sheets and weather maps
4. Understand the fundamentals of GIS and remote sensing

Unit - 1

Map-Definition and characteristics- Importance of maps- History of maps-
Classification of maps

Unit - 2

Basic elements of map- Latitudes and longitudes- Representation of scale - Map
projections-Conventional signs and symbols-Their importance

Unit - 3

Toposheets - Study of SOI toposheets with reference to physical and cultural features-
Study of weather maps

Unit - 4

Recent trends in mapping- Geoinformatics- Fundamentals of remote sensing- GIS and
GNSS.

Books for Study

1. Saha, P. & Basu, P. (2014) Advanced Practical Geography, Books and Allied Ltd.,
Kolkatta.
2. Singh, R.L. & Singh, R. P. B. (2009) Elements of Practical Geography, Kalyani
Publishers, New Delhi.
3. Gopal Singh (1998) Map Work and Practical Geography (4th Edition), Vikas Publishing
House, Ahmedabad.
4. Rampal, K.K.(1999) Handbook of Aerial Photography and Interpretation, Concept
Publishing Company, New Delhi.

Books for Reference

1. Misra R.P.and Ramesh A. (1969) Fundamentals of Cartography, Concept pub. New Delhi
2. Dent BD (1990), Cartography- Thematic map design, Brown Pub.
3. Misra RP.and Ramesh A (1969), Fundamentals of Cartography, Concept pub. New Delhi
4. Robinson, H Arthur et al, (2002) Elements of Cartography, John Wiley and Sons, Inc. Singapore.
5. Campell J.B. (2002),Introduction to Remote sensing, Taylor and Francis, London
6. Lillesand T.M and R.W. Kiefer (1994), Remote sensing and image interpretation, 3rd edition, John Wiley & Sons, New York.

Web Resources

1. <https://rsc.umn.edu/>
2. http://www.euromap.de/docs/doc_001.html
3. <http://dst-iget.in/>
4. <https://gis.e-education.psu.edu/>
5. https://nptel.ac.in/courses/105104100/lectureE_36/E_36_5.htm

GENERIC ELECTIVE COURSE II: GEOINFORMATICS

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5D02GRY	2	2	2

Course Outcomes:

After the completion of the Course, the students will have the ability to:

- 1 Understand the basic of Geo-informatics
- 2 Understand the principles of remote sensing
- 3 Understand GNSS
- 4 Understands Geographical Information System and its application..

Unit I:

Geo-informatics – Definition and components – Shape of the Earth - Co-ordinate systems; Geographic, Rectangular –Ellipsoid and Geoid - Datums - map projections – Scale.

Unit II:

Aerial photography – Types of aerial photographs – Photogrammetry – Elements of aerial photo interpretation - Principles of remote sensing - Electromagnetic Radiation (EMR) – Platforms and sensors – Satellite orbital characteristics. Concept of Resolutions in Remote sensing - Spatial, spectral, radiometric and temporal – Data processing - Remote sensing data products.

Unit III:

Global Navigation satellite systems and **Regional navigation satellite systems** – GPS, GLONASS – Galileo – BeiDou – IRNSS and QZSS - Application areas.

Unit IV:

Geographical Information system – Components – Softwares; Proprietary and Open Source – Data - Spatial and attribute data – Spatial data; Vector and raster data models – Sources of Data – Field data – Remotely sensed data – Global Navigation Satellite system data – Metadata – Data input - Data display – Data exploration- data analysis – GIS modelling - Applications

Books for Study

1. Basudeb Bhatta, (2011) Remote Sensing and GIS, 2nd edition, Oxford University Press, New Delhi.
2. Robinson Arthur H et al, (2010) Elements of Cartography, 6th edition, Wiley India Pvt. Ltd.
3. Lillesand, T.M. and Kiefer, R.W. (2015) Remote Sensing and Image Interpretation. 7th Edition, Wiley, New York.
4. Heywood Ian et al ,(2005) An introduction to Geographical Information Systems, 2nd edition, Pearson Education Pvt.Ltd. Delhi.

Books for Reference

1. Longely Paul A et al, (2015) Geographic Information Science and Systems, 4th edition, John Wiley and sons Inc, New York.
2. Lo C P and Yeung Albert K W. (2004), Concepts and Techniques of Geographic Information Systems, Prentice Hall of India Pvt.Ltd, New Delhi.
3. Demers. Michael N, (2014) Fundamentals of Geographic Information Systems, 4th edition, John Wiley and sons Inc, New Delhi.
4. Bernhardsen Tor, (2011), 3rd edition, Geographic Information Systems, An introduction. John Wiley and sons Inc, N.Y.
5. Chang Kang-tsung, (2008) Introduction to Geographic Information Systems, 4th edition, Tata McGraw-Hill Publishing Company Ltd. New Delhi.
6. Bernhardsen Tor, (2011), 3rd edition, Geographic Information Systems, An introduction. John Wiley and sons Inc, N.Y.

Web Resources

1. <http://qgis.org>
2. <http://www.esri.in/>
3. <https://arset.gsfc.nasa.gov/>
4. <https://rscc.umn.edu/>
5. <https://www.isprs.org/>
6. http://www.euromap.de/docs/doc_001.html
7. <http://dst-iget.in/>
8. <https://gis.e-education.psu.edu/>
9. <https://www.nrcan.gc.ca/earth-sciences/geomatics/satellite-imagery-air-photos/air-photos/about-aerial-photography/9687>
10. http://planet.botany.uwc.ac.za/nisl/gis/gis_primer/page_27.htm
11. https://serc.carleton.edu/research_education/geopad/imagery_data.html
12. https://nptel.ac.in/courses/105104100/lectureE_36/E_36_5.htm

GENERIC ELECTIVE COURSE III: GEOGRAPHY OF INDIA

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5D03GRY	2	2	2

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand physical setting of Indian sub-continent.
2. Understand climatic condition and seasons in India.
3. Understand wetland system of India.
4. Understand biodiversity in India

Unit – 1

Physical Setting: Location of India, Physiographic units- Himalaya, North ~ Indian plain, Desert, Peninsular plateau, Coastal plain and Islands.

Unit -2

Climate: Factors controlling Indian climate, Seasons, Monsoons, South West and North East monsoons, Distribution of temperature and rainfall, floods and drought.

Unit – 3

Drainage: Major Rivers, lakes, lagoons and backwaters, degradation of wet land.

Unit – 4

Soil types, Natural vegetation types- Biodiversity- Biosphere reserve-wild life sanctuaries and national parks.

Book for study

1. Gopal Singh (1976), Geography of India, Atma Ram, India.

2. Nag, P. and Roy, P. (1998), Geography of India, Concept Publications, New Delhi.
3. Tirtha, R. (1996), Geography of India, Rawat Publications, Jaipur.
4. Majid Hussain (2009) Geography of India, McGraw Hill India

Book for References

1. Memoria, C. B. (1984), Economic and Commercial Geography of India, Shivalal Agarwal Publication Co. Agra.
2. Gopal Singh (1976), Geography of India, Atma Ram, India.
3. Sharma, T. C. and Continho (1988), Economic and Commercial Geography of India, Vikas Publishing House, New Delhi.
4. Khullar, D. (2000), India-A Comprehensive Geography, Kalyani publishers, New Delhi.
5. Nag, P. and Roy, P. (1998), Geography of India, Concept Publications, New Delhi.
6. Tirtha, R. (1996), Geography of India, Rawat Publications, Jaipur.
7. India, (2014), Year Book, Ministry of Information and Broadcasting, Govt. of India.
8. Rajaram K (2015) Geography Of India, Spectrum Books (P) Ltd

Web References

- 1 <https://www.moes.gov.in/>
- 2 <http://moef.gov.in/>
- 3 <https://mib.gov.in/>
- 4 <https://www.ncess.gov.in/>
- 5 <http://www.cseindia.org/>

GENERIC ELECTIVE COURSE IV: TOURISM MANAGEMENT

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5D04GRY	2	2	2

Course Outcomes

After the completion of the Course, the students will have the ability to

1. Understand the tourism and types
2. Acquire knowledge about the tourism potential of India.
3. Understand the tourism management.
4. Learn about different tourism organisations in India.

Unit – 1

Tourism: Definition –Types of tourism –Development in India –Tourism and economic importance.

Unit – 2

Tourism potentials in India: Tourist attractions – Religious, Receptions, Sports and games –Festivals – Medical tourism.

Unit – 3

Tourism management: Accommodation - Transport facility - Travel agencies - Publicity and marketing –Tourism visa - Passport and Tourist guides.

Unit – 4

Tourism organizations: WTO – PATA and tourism organizations in India – ITDC – Functions –KTDC -Tourism in Kerala: Major Tourist Centres, Potentials, Developments- Eco tourism

Book for Study

1. Bhatia A.K. (1999) Tourism Development Principles & Practices, Sterling publishers, New Delhi.
2. Maneet K. (1992) Tourism Today, Kanishka Publishing House, Delhi.

3. Rosemary B. (1995) Travel Geography, Pitman Publishing, London.
4. Vinod N. (2010) Tourism and Hotel Industry, Cyber Tech Publications, New Delhi.
5. Robinson, H. A. (1996) Geography of Tourism, Macdonald and Evans, London.

Books for Reference

1. Bhattacharya, P. (2006), Trend in Tourism Potentiality, Bani Mandir, Guwahati.
2. Douglas Pearce (1949), Tourism today – A Geographical analysis, Longman Publications, New York.
3. Khullar, N., (1985), Dynamics of Tourism, Sterling Publishers Pvt. Ltd., New Delhi.
4. Praveen Sethi (1999), Tourism in Developing Countries, Rajat Publications, New Delhi.

Web Resources

1. <http://tourism.gov.in/>
2. <https://www.britannica.com/topic/tourism>
3. <https://www.india.gov.in/topics/travel-tourism>
4. <https://www.bbc.co.uk/programmes/b007xwdc/episodes/guide>

GENERIC ELECTIVE COURSE V: NATURAL DISASTER MANAGEMENT

SEMESTER	COURSE CODE	HOURS PER WEEK	CREDIT	EXAM HRS
5	5D05GRY	2	2	2

Course Outcomes:

After the completion of the Course, the students will have the ability to:

1. Understand the natural disaster
2. Under the causes and consequences of natural resources
3. Understand the causes and consequences of Geo hydrological disaster
4. Understand the management policies of natural disaster

Unit - 1

Natural disasters – Types - Major disasters in the world

Unit -2

Causes, consequences and management measures of - Earth quakes, Tsunamis, Volcanoes, Landslides and Cyclones,

Unit - 3

Geo- hydrological disasters- Causes and consequences- Floods and drought- Prone areas in India.

Unit - 4

Concept of disaster management- Policies and programme -Role of Government and Voluntary organizations

Books for Study

1. Savindra S. & Jeetendra S. (2013) Disaster Management, Pravalika Publications, Allahabad.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Ghosh G.K. (2006), Disaster management Vol IV, APH pub

4. Hussain Majid (1994), Geographical Hazards, Anmol pub

Books for Reference

1. Aravind Kumar (2006), Disaster management- Recent approaches Anmol Pub
2. Srivasthava H.N and Gupta G.D.(2006), Management of natural Disasters in developing countries, Daya publishing house
3. Yadav R.J.(2011), Disaster management in India, Paradise Pub
4. Srivasthava H n and Gupta G.D(2006), Management of natural Disasters in developing countries, Daya publishing house
5. Yadav R.J. (2011), Disaster management in India, Paradise Pub
6. Govt. of India (2008) Vulnerability Atlas of India, BMTPC, New Delhi.
7. Govt. of India (2011) Disaster Management in India. Ministry of Home Affairs, New Delhi.

Web resources

1. <http://www.ndma.gov.in/en/>
2. <http://nidm.gov.in/>
3. <http://www.imd.gov.in/>
4. <https://www.unisdr.org/>

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