



**SARDAR PATEL UNIVERSITY**  
**Vallabh Vidyanagar, Gujarat**  
**(Reaccredited with 'A' Grade by NAAC (CGPA 3.25))**  
**Syllabus with effect from the Academic Year 2021-2022**

**M.Sc. Earth Science**  
**Semester – IV**

Course Code	<b>PT04CESC03</b>	Title of the Course	<b>Physical Geography</b>
Total Credits of the Course	4	Hours per Week	4

Main Focus of the Course outcomes	Employability	Skill Development	Entrepreneurship
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Course Objectives:	<p>This course enables student to,</p> <ol style="list-style-type: none"><li>1. To learn the relevance of applied aspects of Geomorphology and climatology in various fields.</li><li>2. To get the ideas about current situation and future of the field of Biogeography.</li><li>3. To understand the basics of environmental geography and man-land relationship.</li><li>4. To explore the main regions of India in terms of both their uniqueness and similarities.</li></ol>
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Course Content		
Unit	Description	Weightage*
1.	Geomorphology and climatology: Development in geomorphology. Historical and process Geomorphology. Landforms in relation to climate, rock type, structure and tectonics. Processes – weathering, pedogenesis, mass movement, erosion, transportation and deposition. Geomorphic processes and landforms – fluvial, glacial, eolian, coastal and karst. River forms and processes – stream flow, stage-discharge relationship; hydrographs and flood frequency analysis. Submarine relief. Geomorphology and topographic analysis including DEM, Environmental change– causes, effects on processes and landforms. Extra-terrestrial geomorphology; Climatology: Fundamental principles of climatology. Earth's radiation balance; latitudinal and seasonal variation of insolation, temperature, pressure, wind belts, humidity, cloud formation and precipitation, water balance. Air masses, monsoon, Jet streams, tropical cyclones, and ENSO. Classification of climates- Koppen's and Thornthwaite's scheme of classification. Climate change.	25%



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2.	Bio-geography: Elements of biogeography with special reference to India; environment, habitat, plant-animal association; zoo-geography of India; Biomes, elements of plant geography, distribution of forests and major plant communities. Distribution of major animal communities. Conservation of forests. Wildlife sanctuaries and parks.	25%
3.	Environmental Geography: Man-land relationship. Resources-renewable and non-renewable. Natural and man-made hazards-droughts, floods, cyclones, earthquakes, landslides, tsunamis. Ecological balance, environmental pollution and deterioration.	25%
4.	Geography of India: Physiography, drainage, climate, soils and natural resources- the Himalaya, Ganga-Brahmaputra Plains, and peninsular India Precambrian shield, the Gondwana rift basins, Deccan Plateau. Indian climatology with special reference to seasonal distribution and variation of temperature, humidity, wind and precipitation; Climate zones of India. Agricultural geography of India. Population-its distribution and characteristics. Urbanization and migration. Environmental problems and issues.	25%

Teaching-Learning Methodology	<ul style="list-style-type: none"><li>• We make extensive use of chalkboard.</li><li>• ICT tools such as projectors, smart boards, etc.... are also used for better explanation of scientific concepts.</li><li>• Detail lecture notes and other reference materials are also provided to the students as and when required from departmental library resources.</li></ul>	
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to



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1.	After completion of this course students will be able to, <ul style="list-style-type: none"><li>• To demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena, geomorphology, climatology, biogeography, environmental geography.</li></ul>
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Suggested References:

Sr. No.	References
1.	Paul R. Bierman and <a href="#">David R. Montgomery</a> , <a href="#">Key Concepts in Geomorphology</a> , W. H. Freeman (2013)
2.	<a href="#">Richard Huggett</a> , <a href="#">Fundamentals of Geomorphology (Fundamentals of Physical Geography)</a> , Routledge (2011)
3.	<a href="#">Michael A. Summerfield</a> , Global Geomorphology, Routledge (1991)
4.	<a href="#">Robin Davidson-Arnott</a> , <a href="#">Introduction to Coastal Processes and Geomorphology</a> , Cambridge University Press (2010)
5.	<a href="#">Dennis L. Hartmann</a> , Global Physical Climatology, (International Geophysics), Academic Press (1994)
6.	Robert V. Rohli, Anthony J. Vega, Climatology, Jones and Bartlett Publishers (2008)
7.	<a href="#">Adebayo, Williams Oluwole</a> , Fundamental principles of climatology, <a href="#">Adeyemo Publishing House</a> (2007)
8.	H. <a href="#">Robinson</a> , Biogeography, MacDonal and Evans, London: Macdonald and Evans (1978)
9.	<a href="#">N.V. Pears</a> , Basic Biogeography, Routledge (1985)
10.	<a href="#">Savindra Singh</a> , Environmental Geography, PrayagPustakBhawan (1991)
11.	R. B. Singh, Environmental geography, Heritage Publishers (1990)
12.	<a href="#">Majid Husain</a> , Geography of India, Mcgraw hill education (2014)
13.	R. C. <a href="#">Tiwari</a> , Geography Of India, PrayagPustakBhawan (2010)

On-line resources to be used if available as reference material

On-line Resources

1. <https://nptel.ac.in/courses/105/107/105107200/>
2. <https://nptel.ac.in/courses/124/107/124107004/>
3. [https://onlinecourses.swayam2.ac.in/cec20\\_hs31/preview](https://onlinecourses.swayam2.ac.in/cec20_hs31/preview)
4. <https://nptel.ac.in/courses/109/104/109104102/>
5. [https://onlinecourses.swayam2.ac.in/cec20\\_hs32/preview](https://onlinecourses.swayam2.ac.in/cec20_hs32/preview)