

**DECCAN EDUCATION SOCIETY'S
FERGUSSON COLLEGE, PUNE
(AUTONOMOUS)**

Department of Geography

**SYBA (General) (Semester III & IV) syllabi
Under the Autonomous status**

(From the Academic Year 2017-18)

DES's Fergusson College (Autonomous) Pune
Department of Geography
Syllabus of SYBA (Geography) General paper under autonomy
Title of the course: Fundamentals of Climatology.
Semester: III
Code Number: GEO 2301
(To be introduced from the academic year 2017-18, Semester III)

Structure /Pattern of the syllabi- SYBA (Geography) (General)

1. Title of the Course: **Fundamentals of Climatology (GEO 2101)**
2. Objectives of the syllabus
 - i) To acquaint the students with the basic concepts and principles relating to Climatology.
 - ii) To develop in students an understanding about basic atmospheric systems and circulations.
 - iii) To acquaint the students with the current global issues in Climatology.
3. Eligibility: FYBA pass.
4. Examination:-
 - a) Pattern-Semester (Semester III)
 - b) Evaluation system (Semester III): 100 marks.
 - c) Standard of passing: 40
5. Total periods: 45 per each semester (of 50 min. each)
6. Total credits: 3 (15 periods for one credit)
7. Methods of instruction: Lecture, Field visits, Multimedia, Individual and/or Group Projects, Map study.

Fundamentals of Climatology (GEO 2101)

Sr. No.	Unit	Sub Unit	No. of periods
1	Introduction to Climatology and Meteorology	1. Definition, meaning, nature and scope of Climatology and Meteorology. 2. Significance of Climatology and Meteorology in the Indian context. 3. Weather and climate-meaning and differences 4. Elements of weather and climate. 5. Composition and structure of the atmosphere	08
2	Insolation	1. Heat budget of the Earth. 2. Factors affecting horizontal and vertical distribution of temperature. 3. Lapse rate, inversion of temperature.	06
3	3 Atmospheric Pressure and Wind System	1. Vertical and horizontal distribution of atmospheric pressure. 2. Formation and shifting of pressure belts and their relation with winds. 3. Concept of pressure gradient, geostrophic wind. 4. Type of winds- planetary winds, seasonal winds, local winds - land and sea breezes, mountain and valley winds. 5. Indian Monsoon.	08

4	Atmospheric Moisture and Precipitation	1. Sources of moisture, methods to express humidity of the air- absolute and relative humidity. 2. Forms of precipitation- rain, snow, dew, hail and fog. 3. Types of rainfall- orographic, convectional, cyclonic. 3. Types and nomenclature of clouds- high, medium and low clouds.	07
5	Atmospheric Circulation	1. Airmasses, atmospheric fronts and their types 2. Cyclones- tropical and temperate and associated weather conditions. 3. Anticyclones and associated weather conditions.	08
6	Current issues in Climatology and Meteorology	1. Global warming and climate change 2. Rise in extreme weather phenomena- Thunderstorm, hailstorm, cloud burst, drought. (Examples from India) 3. Atmospheric pollution- Acid rain, smog.	08

Climatology -Reading List

1. Synoptic and Dynamic Climatology: Roger G. Barry and Andrew M. Carleton. Routledge, New York and London; 2001.
2. Atmosphere, Weather and Climate: Roger G. Barry, Richard J. Chorley. Rutledge, London and New York; 2003.
3. General Climatology: Howard J. Critchfield. Prentice-Hall India, New Delh; 1987.
4. Climatology: [D. S. Lal](#), Sharda Pustak Bhawan; 2003.
5. A World of Weather: Fundamentals of Meteorology-A Text/Laboratory Manual: Jon M. Nese, Lee M. Grecni. 2nd Edition, Kendall/Hunt Publishing Company; 1998.
6. Climatology: An Atmospheric Science, [John E. Oliver](#), [John J. Hidore](#), Prentice Hall; 2002.
7. Applied Climatology: Principles and Practice. Russell D. Thompson, Allen Howard Perry, Psychology Press; 1997.
8. An Introduction to Climate: [Glenn Trewartha](#), [Lyle Henry Horn](#). McGraw-Hill; 1980.
9. हवामानशास्त्र आणि सागरविज्ञान: डॉ. श्रीकांत कार्लेकर, डायमंड पब्लिकेशन्स, पुणे; २०१३.
10. प्राकृतिक भूगोलाची मुलतत्वे: डॉ. श्रीकांत कार्लेकर आणि प्रा. अ. वि. भागवत डायमंड पब्लिकेशन्स, पुणे.
11. पर्यावरण समस्या निराकरण आणि क्षेत्र अभ्यास: डॉ. श्रीकांत कार्लेकर, डायमंड पब्लिकेशन्स, पुणे

DES's Fergusson College (Autonomous) Pune

Department of Geography

Syllabus of SYBA (Geography) General paper under autonomy

Title of the course: Fundamentals of Oceanography.

Semester: IV

Code Number: GEO 2401

(To be introduced from the academic year 2017-18, Semester IV)

Structure /Pattern of the syllabi- SYBA (Geography) (General)

1. Title of the Course: **Fundamentals of Oceanography (GEO 2201)**
2. Objectives of the syllabus
 - i) To introduce students to the basic concepts and principals of Oceanography.
 - ii) To develop in students an understanding about basic oceanic systems, circulations and submarine relief.
 - iii) To acquaint students with basic properties and movements of ocean water.
 - iv) To acquaint the students with the current global issues and conservation aspects in Oceanography.
3. Eligibility: FYBA pass.
4. Examination:-
 - a) Pattern-Semester (Semester IV)
 - b) Evaluation system (Semester IV): 100 marks.
 - c) Standard of passing: 40
5. Total periods: 45 per each semester (of 50 min. each)
6. Total credits: 3 (15 periods for one credit)
7. Methods of instruction: Lecture, Field visits, Multimedia, Individual and/or Group Projects, Map study.

Code Number: GEO 2201 Fundamentals of Oceanography.(Semester: IV)

Sr.No.	Unit	Sub Unit	No. of periods
1	Introduction to Oceanography	1. Definition, nature and scope. 2. Historical development and significance of Oceanography (with reference to Indian Context)	06
2	Submarine relief	1. Submarine profile and hypsometric curve. 2. Relief of Pacific, Atlantic and Indian oceans.	06
3	Properties of Ocean Water	1. Meaning, factors affecting and distribution of - a. Temperature b. Density c. Salinity 2. Salinity of oceans, landlocked seas, and lakes with examples.	08
4	Movements of Ocean water	1. Waves- Characteristics and types. 2. Ocean currents-meaning, causes, types, patterns and effects.	10

		3. Ocean currents of Pacific ,Atlantic and Indian Oceans 4. Tides-Meaning, origin and types.	
5	Coastal environment and protection	1. Nature of coastal environment. 2. Coastal pollution. 3. CRZ. 4. Oceans as resources for the future.	08
6	Current issues in Oceanography	1. El Nino and La Nina. 2. Sea level change and its impact. 3. Tidal energy. 4. Tsunami.	07

Oceanography: Reading List

1. The World Ocean: An Introduction to Oceanography:-[William A. Anikouchine](#), [Richard W. Sternberg](#); Prentice-Hall,1981.
2. Oceanography: An Invitation to Marine Science, [Tom S. Garrison](#), 9th Edition, Cengage Learning-NGS.; 2010.
3. Invitation to Oceanography Paperback: [Paul R. Pinet](#); Jones & Bartlett Learning, 2012.
4. Oceanography: An Earth Science Perspective- [Steve Kershaw](#), [Andy Cundy](#), Psychology Press, 2000.
5. Essentials of Ocean Science: [Keith Stowe](#), 1st Ed., Wiley & Sons.1987.
6. An Introduction to the World's Oceans: Keith A. Sverdrup
E. Virginia Armbrust, 10th Edn. MacGaw-Hill.1984.
6. Essentials of Oceanography: [Alan P. Trujillo](#), [Harold V. Thurman](#), Pearsons; 12thEdn. 2016.
7. हवामानशास्त्र आणि सागरविज्ञान:डॉ.श्रीकांत कार्लेकर,डायमंड पब्लिकेशन्स,पुणे;२०१३.
8. प्राकृतिक भूगोलाची मुलतत्त्वे: डॉ.श्रीकांत कार्लेकर आणि प्रा.अ.वि.भागवत डायमंड पब्लिकेशन्स,पुणे;2009.