**SHYAMA PRASAD MUKHERJI COLLEGE (FOR WOMEN)**

**Department Of Geography**

**TEACHING PLAN -August 2022to December 2022**

**COURSE AND YEAR: B.A. (H) II YEAR - GEOGRAPHY**

**SEMESTER: III**

**TAUGHT INDIVUDALLY OR SHARED: SHARED WITH Mr. SHASHANK**

**PAPER: CLIMATOLOGY(LOCF)**

**FACULTY: RACHNA DUA**

**NUMBER of CLASSES (Per Week): 4**

**Course Objectives:**

1. Various dimensions of climatology like structure and composition.

2. Detailed analysis of global atmospheric pressure and wind system.

3. Understanding of the concepts of climatology.

**Unit: 1**

1. **Atmosphere composition and structure**

* Composition of Atmosphere (1-2 classes, 4 week of August)
* Structure of Atmosphere (2 classes, 1st week of Sept)
* Variation in composition with Altitude Latitudes and seasons and Time (2 classes, 1st week of Sept)

1. **Insolation**

* Factors Affecting the Distribution of Insolation (1-2 classes, 2nd week of September)
* Heat Budget (1-2 class, 2nd week of September)

1. **Atmospheric Temperature**

* Mechanism of Heat Transfer (1 class, 3rd week of September)
* Factors Controlling the Distribution of Atmospheric Temperature (2 classes, 3rd week of September)
* Inversion of Temperature / types (1-2 classes, 3rd week of September)
* Horizontal Distribution of Temperature (1-2 classes, 4th week of September)

**Unit: 2**

1. **Atmospheric Pressure**

* Factors Controlling Atmospheric Pressure (1-2 classes,) 4th week of September.
* Global Pressure Belts (2-3 classes,) 1st week of October.

1. **Winds**

* Factors Affecting Winds – Pressure Gradient force, Coriolis force, Geostrophic wind, Centripetal Acceleration, Gradient wind, Frictional Force. 3- 4 classes, 2nd week of October)
* Planetary winds 2 classes, 3rd week of October)

1. **General Atmospheric Circulation**

* Define General Atmospheric Circulation, Factors affecting General Circulation (1-2 classes, 3rd week of October)
* Meridional Circulation of the Atmosphere – Explain the mechanism of Hadley Cell, Ferrell Cell, Rossby waves and Polar Cell (3- 4 classes, 4th week of Oct)
* Regional Vertical Atmospheric Circulation – Walker Circulation (1-2 classes, 1st week of November)
* Jet Stream (1-2 classes, 1st week of November)

**Unit IV Tropical Cyclone, Extratropical Cyclone, Monsoon**

1. Tropical Cyclones – Mechanism and Distribution ( 2-3 classes , 2nd week of November)
2. Temperate / Extratropical Cyclones – Polar Front Theory ( 2-3 classes , 3 rd week of November)
3. Monsoon **–** (4 classes, 4th week of November)

* Theory of the origin of Monsoon
* Thermal Concept
* Dynamic Concept
* Jet Stream Theory
* Elnino and Elnina

**Unit V Climatic Region**

1. World Climate Region and Koeppen’s Classification (3-4 classes. 1 week of December)
2. Revision – 2nd week of December.

**Methodology of teaching**:

* Interactive offline Lectures supplemented with ppts.

- diagrams are drawn on the blackboard to make students understand the concepts diagrammatically.

- Relevant videos are shown.

- In tutorial class students present their work in the classroom. Feedback is mostly given simultaneously.

**Teaching Strategies:**

Interactive lectures, Discussions, Problem solving, slide share, videos, use of chalk and duster.

**Assessment: continuous / ongoing**

**Criteria of Assessment**

1. Class tests
2. Assignment
3. Project work/Presentation
4. Semester Examination

**Tentative Dates of Assessment:**

1. September (Assignment)
2. October 2021 (Test 1)
3. November 2021(Test 2)

Semester Exams in December 2021- 13th dec onwards practical and theory

**Readings/Reference Texts:**

1. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.

2. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi

3. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.

4. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.

5. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.

6. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad

7. Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad

8. Singh, S (2009): Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad

9. Strahler, A.N. (1987). Modern Physical Geography. New York and Singapore: John Wiley and Sons.

.10. Gupta, L.S. (2000). Jalvayu Vigyan (Hindi), Delhi, India: Madhyam Karyanvay Nidish

11. Malhotra, Natasha. (2018) Climatology

**Extra Readings**

1. Jalvayu Vigyan. Tiwari

2. Robinson, Peter J. Robinson (1999). Contemporary Climatology. England: Pearson Prentice Hall.

3. [Climate Science Special Report](https://science2017.globalchange.gov/) – U.S. Global Change Research Programhttps://science2017.globalchange.gov/

4. Theoretical and Applied Climatology

<https://www.springer.com/journal/704/>

5.K. Siddhartha, Climatology: Atmosphere Weather Climate