

Introduction to Climate

Code: DC-V (345507) /AC 375307

Objectives:

1. To acquaint the students with basic knowledge of atmosphere, weather and climate.
2. To understand different characteristics and processes of atmosphere.
3. To know the fundamental concepts of insolation and heat budget.
4. To acquaint the students with weather forecasting.

Unit. No.	Topic	Sub-topics	Periods	Marks
I	Introduction to Atmosphere	A) Definitions of Atmosphere B) Composition of Atmosphere i)The Gases, ii) Water Vapour & iii) Particulates C) Structure of Atmosphere I) On the Basis of Chemical Composition:	12	25
II	Insolation and Heat Budget	A) Meaning and Definition of Insolation, Solar Constant and Albedo of the Earth B) Distribution of Insolation - Factors affecting the distribution of Insolation C) Heat Budget of the Earth and Atmosphere	18	25

III	Elements of Weather and Climate	<p>A. Meaning and Definition of Weather and Climate</p> <p>B. Elements of Weather and Climate:</p> <p>1) Temperature</p> <p>a) Meaning and Definition of Heat and Temperature.</p> <p>b) Distribution of Temperature</p> <p>i) Factors affecting the distribution of temperature.</p> <p>ii) Horizontal Distribution of Temperature</p> <p>2) Atmospheric Pressure</p> <p>a) Horizontal Distribution of Pressure</p> <p>b) Formation of Pressure Belts</p> <p>c) Shifting of Pressure Belts and their Effects</p> <p>3) Winds</p> <p>a) Factors affecting Winds</p> <p>i) Pressure Gradient</p> <p>ii) Coriolis Force</p> <p>iii) Frictional Force</p> <p>b) Classification of Winds</p> <p>i) Planetary Winds: Trade, Antitrade and Polar</p>	18	2 5
IV	Weather Forecasting	<p>I Meaning and Importance</p> <p>II Procedure of Weather Forecasting</p> <p>III Tools in Weather Forecasting</p> <p>IV Methods of Weather Forecasting:</p> <p>Synoptic, Statistical and Numerical Method</p>	12	2 5

Reference Books:

1. Aguado, E. and Burt, J.E. (2001): ***Understanding Weather and Climate***, Printice Hall, Upper Saddal River, New Jersey.
2. Barry, R.G. & Chorly, R.J.(1995) : ***Atmosphere, Weather and Climate***, Routledge, London and New York.
3. Critchfield, H. J.(2002) : ***General Climatology***, Prentice Hall, New Delhi, India.
4. Das, P.K.(1968): ***Monsoon***, National Book Trust, New Delhi.

5. Lal, D.S. (1986): ***Climatology***, Chaitany Book Trust, New Delhi.
6. Majid Hussain(2002): ***Climatology***.Rawat Publication, Jaipur
7. Millar A. et.al. (1983): ***Elements of Meteorology***, Merrill, Columbus
8. Siddharth, K. (2001): ***Atmosphere, Weather and Climate***, Kisaliya Publications Pvt. Ltd., New Delhi.
9. Singh Savindra (2005): ***Climatology***, Prayag Pustak Bhawan, Allahabad.
10. Strahler, A.N. (1965): ***Introduction to Physical Geography***, Willey, New York.
11. Stringer E.T.(1982) : ***Foundation of Climatology***, Surjeet publications, Delhi.
12. Trewartha, G.T. (1980): ***An Introduction to Weather and Climate***, McGraw Hill, New York.