

CC -XII -PLANT ECOLOGY AND PHYTOGEOGRAPHY

Unit I

General Ecology – Approaches to the study of Ecology, Autecology – Synecology, Plant environment – climatic, edaphic and Biotic factors (interference on Plant habitat by animals – Grazing and browsing, by humans – deforestation, Agriculture)
Allelopathy.

Unit II

Ecosystem concept – components abiotic, autotrophic producers & heterotrophic consumers, biomass ecological pyramids, Productivity – primary, secondary & gross; food chain – food web & energy flow – pond ecosystem.

Unit III

Vegetation – Units of vegetation – formation, association, consociation, society – Development of vegetation: Migration – ecesis, colonization, Methods of study of vegetation (Quadrate & transect). Plant succession – Hydrosere & xerosere. Ecological classification of Plants; Morphological and anatomical features of plants and their correlation to the habitat factors.

Unit IV

Applied Ecology – Pollution and its control
Atmospheric pollution – air – pollution – particulate matter.
Chemicals, Acid rain, Radiation pollution, Noise pollution, Thermal pollution
Soil pollution: Industrial effluents, agricultural pollution, plant residues, insecticides, pesticides, fungicides, herbicides.
Water pollution – Industrial effluents (water soluble metals – liquid effluents oil).

Unit V

Phytogeography

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Approaches to Phytogeography – Climate of India & its climatic zones, Botanical regions of India – Vegetational types of Tamilnadu: Evergreen, deciduous, scrub & Mangrove, Continuous and discontinuous distribution. Endemism 7 endemics.
Basic knowledge on remote sensing.

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Practical :

Study of morphological and anatomical features of hydrophytes and xerophytes. Study of morphological features of epiphytes, parasites and halophytes. Study of vegetation by the quadraat, line transect, estimation of frequency, density & Dominance cover. Determination of soil & water pH. Analysis of soil water to detect the presence of dissolved salts. The light and dark bottle experiment for primary productivity study in the aquatic ecosystem. Retentivity, absorption and capillarity of soil.