

M.Sc. ENVIRONMENTAL SCIENCE PROGRAMME
(CBCS Semester Scheme) 2023-24

SYLLABUS

I SEMESTER

HARD CORE COURSES

ESH411 ENVIRONMENTAL BIOLOGY AND ECOLOGY 52 hrs.

Course Outcomes:

CO1 Gain the knowledge of ecosystems and population ecology.

CO2 Study various environmental factors in detail.

CO3 Understand various terminologies in ecology.

CO4 Learn atmospheric humidity in detail.

CO5 Understand the concept of ecological aspects.

UNIT I (13 hours)

Ecosystems: Structure, functions, biotic and abiotic components, food chain, types of food chain, food web, Diversity Stability rule, Homeostasis. Ecological niche, Spatial, Functional, Ecological Dominance. Energy flow in ecosystem, Lindeman model Ecotone & Edge effect, Ecological Pyramids.

UNIT II (13 hours)

Environmental factors: Limiting factors, Ecotone & Edge effect - climatic factors, influence of light on morphology and physiology of plants, characteristics of heliophytes and sciophytes, temperature – thermo periodicity, effect of low and high temperature on plants and animals.

UNIT III (13 hours)

Atmospheric humidity: Relative humidity in relation to metabolism of organism with suitable examples. Wind - mechanical effects of wind; lodging, breakage, deformation, anemophily and anemochory, physiological effects of wind. Edaphic factor - soil complex - soil erosion and soil conservation.

UNIT IV (13 hours)

Population ecology: Characteristics, age distribution, population growth, causes for population explosion, population control. Biomes, Ecological succession, Biological productivity, Ecological adaptations. Biological interactions- types of interspecific and intraspecific interactions- neutralism, positive interactions - negative interactions, - Amensalism, mutualism, commensalism, parasitism and predation.

References:

1. Agrawal, K.C. 2001. Fundamentals of Environmental Biology, Nidhi Publishers, Bikaner, India.
2. Arora, M.P. Animal Behavior, Himalaya Publishing House.
3. Culvinvux, P. 1986. Ecology, John Wiley and Sons.
4. Enger, E and Smith, R., 2018. Environmental Science. McGraw Hill Publishing.
5. Kormondy. Concepts of Ecology, Prentice Hall.

