

Syllabus

B.Sc. (General) Fifth Semester (Examination December, 2016)

Objective. The basic objective of this paper is to make students aware about the role of environment in causing structural and functional variation in plants. Since the present day problems of varied nature like pollution, Global Warming etc. are directly or indirectly related to ecology, it is more than desired to provide the students with knowledge of basic concepts of ecology.

Teaching Methodology. Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussion, quiz competitions etc. In practicals students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Definition, scope, relationship with other sciences.

Plant Environment : Climatic, edaphic, topographic and biotic factors affecting growth and distribution of plants.

UNIT-II

Ecosystem : Concept, structure; abiotic and biotic components; trophic levels, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles of carbon, nitrogen and water.

UNIT-III

Community Ecology : Community characteristics, frequency, density cover, life forms, biological spectrum; ecological succession – Hydrosere and Xerosere.

UNIT-IV

Applied Ecology : (a) Air, water and soil pollution and their control.
(b) Conservation and management of natural resources.
(renewable and non-renewable)

PRACTICAL

- Study of ecology adaptations in external characters of : *Hydrilla*, *Potamogeton*, *Ceratophyllum*, *Vallisneria*, *Lemna*, *Eichhornia*, *Nelumbium*, *Calotropis*, *Nerium*, *Acacia*, *Zizyphus*, *Casuarina*, *Capparis*, *Asparagus*, *Ruscus*, *Opuntia*, *Euphorbia royleana*.
- To prepare permanent stained slide to show ecological adaptations in the internal structure of the following :
 - T.S. stem of *Hydrilla*
 - T.S. leaf of *Potamogeton* and *Vallisneria*
 - T.S. leaf and petiole of *Eichhornia*
 - T.S. leaf and petiole of *Nelumbium*
 - T.S. leaf of *Nerium*
 - T.S. stem of *Casuarina* and *Capparis*
- To determine soil pH using pH paper/solution/pH meter.
- To determine water holding capacity of soil.