

**MB-07**  
**PLANT ECOLOGY**

Units	Topics
I	<p><b>Climate, soil and vegetation patterns of the world:</b> Life zones; major biomass and major vegetation and soil types of the world.</p> <p><b>Vegetation organization:</b> Concepts of community and continuum; analysis of communities (analytical and synthetic characters); community coefficients; interspecific associations, ordination; concept of ecological niche.</p> <p><b>Vegetation development:</b> Temporal change (cyclic and non-cyclic); mechanism of ecological succession (relay floristics and initial floristic composition; facilitation, tolerance and inhibition models); changes in ecosystem properties during succession.</p>
II	<p><b>Ecosystem organization:</b> Structure and functions; primary production (methods of measurement, global pattern, controlling factors); energy dynamics (trophic organization, energy flow pathways, ecological efficiencies); litter fall and decomposition (mechanism, substrate quality and climate factors); global biogeochemical cycles of C, N P and S; mineral cycles (pathways, processes, budgets) in terrestrial and aquatic ecosystems. Impact of additional photon on photosynthetic efficiency and ecosystem.</p>
III	<p><b>Biological diversity:</b> Concept and levels; role of biodiversity in ecosystem functions and stability; speciation and extinction; IUCN categories of threat; distribution and global patterns; terrestrial biodiversity hot spots; inventory.</p>
IV	<p><b>Air, water and soil pollution:</b> Kinds; sources; quality parameters; effects on plants and ecosystems.</p> <p><b>Climate change:</b> Greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O CFCs: sources, trends and role); ozone layer and ozone hole; consequences of climate change (CO<sub>2</sub> fertilization, global warming, sea level rise, UV radiation).</p>
V	<p><b>Ecosystem stability:</b> Concept (resistance and resilience); ecological perturbations (natural and anthropogenic) and their impact on plants and ecosystems; ecology of plant invasion: environmental impact assessment; ecosystem restoration.</p> <p><b>Ecological management:</b> Concepts; sustainable development; sustainability indicators.</p>