

**M.Sc (Final) Environmental Sciences  
Semester IV**

**Paper IV B  
Restoration Ecology**

**Unit I**

Contaminated lands: Types of contaminated lands and contaminants; effects of contaminants on biota; Ecology of Disturbed Ecosystems: disturbance and its impact on the structure and functioning of terrestrial and aquatic ecosystems; Types of waste and its characteristics.

**Unit II**

Aims and strategies of restoration: Concepts of restoration, single vs. multiple end-points; ecosystem reconstructions; physical, chemical, biological and biotechnological tools of restoration; Restoration of biological diversity: Acceleration of ecological succession, reintroduction of biota.

**Unit III**

Degradation and restoration of natural ecosystems: Forests, Grasslands, Savanna, Aquatic; Selection of plant species for restoration

**Unit IV**

Restoration of degraded soils: Restoration of contaminated soils and soil fertility; mine spoil restoration. Phytoremediation, phytostabilization, rhizofiltration, phytodegradation, Conditioning strategies;

**Unit V**

Advances and possibilities in phytoremediation: Plant biochemistry, genetic engineering, transgenic plants, use of bacteria. Application and performances; Case studies: In India and abroad