

SYLLABUS OF PG DIPLOMA IN MOUNTAIN ECOSYSTEM AND CLIMATE CHANGE

(COURSE OFFERED AT DSB CAMPUS, NAINITAL)

Semester I

Paper I Mountain Ecosystems

Concept, ecosystem structure, ecosystem function, ecosystem boundary, ecosystem processes, Mountain and Uplands- An Introduction, Characterization of Mountain Ecosystem, past environmental change in mountain and uplands, possible future changes in Mountain Environment. Mountain system and adjacent plains, interrelations between mountains and people. India's environmental issues. Environment impact assessment, Ecosystem health and biological integrity.

Paper II Natural Resources

Biogeography and ecology, Mountain resources- forest, grassland, alpine meadow, water, livestock. Human dimension in ecology- dependence of hill communities on forests, major non timber forests products, value addition, reasons for depletion of resources, programme on sustainable development, ecology and resource conservation linkages, Natural resource based industries.

Paper III Climate Change: An overview

Science of climate change- Greenhouse effect, greenhouse gases, CO₂ fertilization effects on plants, possible effects of global warming, tools to study the climate change, approaches to deal with global warming. Climate change mitigation- International initiative for mitigating global climate change, India's initiative for mitigating climate change, impact of climate change in the mountain regions, aerosols and land use changes mixing local level knowledge with scientific know how to develop adaptive strategies against climate change, Scientific methods for assessing Carbon accumulation in forests and soil, impact of climate change on glacial-ecology. Role of national and international organizations in policy, planning and sustainable development.

Paper IV Biodiversity and ecosystem services

Biodiversity, global accumulation of biodiversity, levels of biodiversity, biodiversity and livelihood, Agro biodiversity, hotspots of biodiversity, disturbance, climate change and biodiversity, biodiversity assessment and inventory, threats and conservation of biodiversity, India's biodiversity and its conservation, International efforts for conserving biodiversity, nature and status of invasive species, vulnerability of ecosystem to invasion, impact of invasive species, International initiative for control of invasive species. Ecosystem services of biodiversity.

Field assessment report and practical

Visit to alpine areas, glaciers, forest types, rural communities, attachment with industries, NGOs, semi-government agencies/ institutions.