

Academic/Activity Calendar

Weekly Lesson Plan (Year 1)

Weeks 1-2: Multidisciplinary nature of environmental studies; components of environment: atmosphere, hydrosphere, lithosphere, and biosphere - Scope and importance; Concept of sustainability and sustainable development; Brief history of environmentalism

Weeks 3-7: Definition and concept of Ecosystem: Structure of ecosystem (biotic and abiotic components); Functions of Ecosystem: Physical (energy flow), Biological (food chain, food web, ecological succession), and Biogeochemical (nutrient cycling) processes. Concepts of productivity, ecological pyramids and homeostasis, Types of Ecosystems: Tundra, Forest, Grassland, Desert, Aquatic (ponds, streams, lakes, rivers, oceans, estuaries); importance and threats with relevant examples from India Ecosystem services (Provisioning, Regulating, Cultural, and Supporting); Ecosystem preservation and conservation strategies; Basics of Ecosystem restoration

Weeks 8-11: Land cover, land use change, land degradation, soil erosion, and desertification; Causes of deforestation; Impacts of mining and dam building on environment, forests, biodiversity, and tribal communities Natural and man-made sources of water; Uses of water; Over exploitation of surface and ground water resources; Floods, droughts, and international & inter-state conflicts over water Renewable and non-renewable energy sources; Use of alternate energy sources; Growing energy needs; Energy contents of coal, petroleum, natural gas and bio gas; Agro-residues as a biomass energy source Case studies: Contemporary Indian issues related to mining, dams, forests, energy, etc (e.g., National Solar Mission, Cauvery river water conflict, Sardar Sarovar dam, Chipko movement, Appiko movement, Tarun Bharat Sangh, etc).

Weeks 12-15: Environmental pollution (Air, water, soil, thermal, and noise): causes, effects, and controls; Primary and secondary air pollutants; Air and water quality standards Related case studies Nuclear hazards and human health risks; Control measures for various types of urban, industrial waste, Hazardous waste, E-waste, etc; Waste segregation and disposal Related case studies

Weekly Lesson Plan (Year 2)

Weeks 1-4: Definition of Biodiversity; Levels of biological diversity; India as a mega-biodiversity nation; Biogeographic zones of India; Biodiversity hotspots; Endemic and endangered species of India; IUCN Red list criteria and categories Value of biodiversity: Ecological, economic, social, ethical, aesthetic, and informational values of biodiversity with examples; sacred groves and their importance with examples Threats to biodiversity: Habitat loss, degradation, and fragmentation; Poaching of wildlife; Man-wildlife conflicts; Biological invasion with emphasis on Indian biodiversity; Current mass extinction crisis; Biodiversity conservation strategies: in-situ and ex-situ methods of conservation; National Parks, Wildlife Sanctuaries, and Biosphere reserves; Keystone, Flagship, Umbrella, and Indicator species; Species reintroduction and translocation Case studies: Contemporary Indian wildlife and biodiversity issues, movements, and projects (e.g. . Project Tiger, Project Elephant, Vulture

breeding program, Project Great Indian Bustard, Crocodile conservation project, Silent Valley movement, Save Western Ghats movement, etc)

Weeks 5-9: Causes of Climate change, Global warming, Ozone layer depletion, and Acid rain; Impacts on human communities, biodiversity, global economy, and agriculture International agreements and programmes: Earth Summit, UNFCCC, Montreal and Kyoto protocols, Convention on Biological Diversity(CBD), Ramsar convention, The Chemical Weapons Convention (CWC), UNEP, CITES, etc Sustainable Development Goals: India's National Action Plan on Climate Change and its major missions Wildlife Protection Act, 1972; Water (Prevention and Control of Pollution) Act, 1974; Forest . (Conservation) Act 1980; Air (Prevention & Control of Pollution) Act, 1981; Environment Protection Act, 1986; Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

Weeks 10-15: Human population growth: Impacts on environment, human health, and welfare; Carbon foot-print; Resettlement and rehabilitation of developmental project affected persons and communities; relevant case studies; Environmental movements: Chipko movement, Appiko movement, Silent valley movement, Bishnois of Rajasthan, Narmada Bachao Andolan, etc; Environmental justice: National Green Tribunal and its importance Environmental philosophy: Environmental ethics; Role of various religions and cultural practices in environmental conservation Environmental communication and public awareness: case studies (e.g., CNG vehicles in Delhi, Swachh Bharat Abhiyan, National Environment Awareness Campaign (NEAC), National Green Corps (NGC) "Eco-club" programme, etc)

Assessment methods

1. Written examinations (Semester exams) [(Year 1: 01 credit (1 hour); Year 2: 01 credit (1 hour)]
2. Project work and reports related to field visits, outreach activities, case study, project formulation, assignments, presentations and practical learning (Internal practical assessment) [(Year 1: 01 credit (2 hour); Year 2: 01 credit (2 hour)]

Year 1 (Sem-1/Sem-11): 01 Credit Theory+ 01 Credit practical exercises, etc. = Total 02 Credits (03 hours)

Year 2 (Sem-1/Sem-11): 01 Credit Theory+ 01 Credit practical exercises, etc. =Total 02 Credits (03 hours)

Activity calendar: Outlining details and tentative dates of Department of Environmental Science and Eco-Club activities

1	November	Orientation: Introduction and detailed discussion of Environmental science (AEC) syllabus with students of first semester
2	December	Inaugural of Kalpdhra (Eco-Club), election of office bearers; Intra-college department level competitions
3	January	Field trip of Environmental Science students One Academic Seminar, Release of Kalpdhra (eco-club) newsletter
4	February	Final Exam of First semester students Theory (17 th Feb) and practical (27 th)
5	March	20 th classes begin Distribution of timetable, Introduction and detailed discussion of Environmental science (AEC) syllabus with second semester students
6	April	Earth day celebration Release of annual magazine
7	May	Field trip of Environmental science (Second semester) Department meeting of syllabus
8	June	News letter Valedictory of club office bearers
9	July	Final exams begin: 8 th July theory; 17 th July practical