

**Guru Gobind Singh Indraprastha University
University School of Environment Management**

Certificate Course

Indian Heritage and Environmental Sustainability

Duration: 3 months (45 hours)

Credits: 4

Background: Most ancient civilisations have lived in close association with Nature in a sustainable way. India has one of the ancient civilisations with dynamic but unbroken traditions and enriched by various religions and philosophies that flourished here. Indian traditions have given lot of value to diversity, plurality, tolerance, and adaptation, which are core to sustainability. Nature worshipping in Vedic period was aimed at developing reverence for all elements of Nature. Our ancient knowledge system led to traditions that paved way for protecting and conserving biodiversity and natural resources, minimising waste, and promoting circularity. Knowing about such ancient knowledge systems and adopting/reviving the same can transform our lifestyles for environmental sustainability, which is the need of the hour.

Course objectives

- To develop a conservative approach amongst learners toward biodiversity ethics and ecological balance.
- To generate awareness of Indian knowledge system regarding water, energy, and natural resource conservation
- To promote Indian traditional practices for mitigating and adapting to Climate Change.
- To inculcate sustainable attitude amongst learners

Main Course Contents:

Unit-I: Introduction, Ancient Indian Culture, religion, and traditions promoting Nature conservation, Sustainable LiFE Mission

Unit-II: Indian philosophy and practices promoting conservation of biodiversity and maintaining ecological balance, ethical approaches to environment, sacred groves – myths, beliefs and biodiversity conservation.

Unit-III: Indian knowledge system and practices for conservation, protection and management of water resources, rainwater harvesting, water use, waste minimisation

Unit-IV: Indian traditions and practices promoting Climate Change mitigation and adaptations- energy conservation, use of renewables, recycling, nature-based solutions.

Course Outcomes:

- Learner will be sensitized towards traditional approach for conserving flora, fauna, water, and natural resources.
- Various relevant sustainable traditions in Indian knowledge system will be learnt for

adoption as climate friendly practices

- Participants will get sensitised towards individual responsibility through lifestyle approach for environmental sustainability.

*The course will be in offline mode. However, some lectures may be in online mode.

Target group: UG, PG students; NGOs working on Environment; Govt. officials in related field and policy making.

Eligibility: Senior Secondary level (+2)

Fees: Rs 15,000/-

Certificate details: Participants will be evaluated through written exam and certificates will be awarded on getting a minimum of 40% marks.

Course Outline

Title of the Course: **Certificate Course on Urban Green Space Management**


Background and Scope:

Rapid urbanization is putting enormous pressure on environment which results in environmental pollution, habitat fragmentation, loss of biodiversity. Urban areas i.e., cities supported by urban ecosystems to persistent life, security, health, employment and other facet of human well-being. Urban green space (UGS) provides space for biodiversity which is important for birds and honey bee species, thus helps in pollination and seed dispersal and provide climate resilient condition. Further UGS most desired place for recreational activities which also provides peace, mental health and cognitive development so that we incorporate in city architectural planning. There is a need for better management of urban greens to understand how it helps in microclimate regulation and mitigate urban heat island effect, clean the air by removing particulate matters like PM10, enriching biodiversity, adaptability against in case of natural disasters through better policy and legislation. This can be done through modification of local legal arrangement, strategic planning for public space and plantation for sustainable cooling system. These measures can play a key role in providing public health, enhancing urban livability and developing resilience to climate change, contributing to sustainable cities. A systematic training may help better professional orientation and skill development on this emerging field which has larger application.

Duration of the Course: 3 months (45 hours)

Mode of the Course: Physical/Hybrid mode at University School of Environment Management during every Saturday and Sunday, along with two field practical visits.

Course Highlights:

- Urban Ecology and Ecosystem services
 - Concept of Urban green Spaces and Urban Forestry
 - Urban Biodiversity and its contribution
 - Approaches for Climate Resilient Cities
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- Methodology for Urban Green space studies
 - Botanical identification
 - Biodiversity assessment
 - Carbon capture by trees
 - Pollution abatement
 - Social and ecological perception
- Restoration of Urban green areas
- Leveraging remote sensing and GIS for Urban green space management
- State Experiences on Urban greening projects
- Policy, Governance and legislation
- Case study Analysis

Fees: INR 20,000/- or equivalent US \$

Total seat - 30

Target Audience and Eligibility:

This training programme is designed for officials from academicians, urban local bodies, officers from other government departments, teachers, architects, planners, engineers, builders and developers, individuals interested in urban greening, researchers and scientists.

Expected Outcome:

Upon completion of the certificate programme, participants should be able to:

- Demonstrate knowledge in the connection in technical, social and legal aspects of Urban Green Space management.
- Understanding of major concepts, theoretical reasoning and empirical findings.
- Demonstrate knowledge of marketable skills (Analysis, GIS, communication, presentation) to enhance their ability to apply concepts from the programme in the real world.

Course Requirement : Participants have to appear for one minor and one major written examination along with assignments and quiz. Minimum passing percentage is 40% in total aggregate, for awarding the Certificate.

Course Director: Prof. Prodyut Bhattacharya, University School of Environment Management, GGSIPU, Delhi.

**Guru Gobind Singh Indraprastha University
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**Certificate course on
Biodiversity, Applied Ecology and Conservation**

Duration: 3 months (45 hours)

Credits: 4

Background: All life and economic activity depends on earth support systems (ecosystem services). Resources/services come from ecosystems and depend on their health/integrity /condition. Support systems have limited capacity to supply goods/services and to assimilate change. Natural change contributes to diversity but makes it hard to identify human-caused change. Support systems are connected, so our actions have unexpected, indirect effects. Local populations/communities/ecosystems are linked in regional and global systems. To understand biodiversity and associated ecological processes for a sustainable living and adopt principles to conserve biodiversity and protect our environment is demand of twenty first century and part of SDG goals.

Course objectives

- To develop awareness towards biodiversity values for sustenance of life on earth.
- To make understand the linkages between basic ecological principles and the real-world environmental issues.
- To create awareness about scientific resource management and planning.
- To sensitize learners about integrated conservation approaches and sustainable living.

Main Course Contents:

Unit-I: Introduction to Biodiversity Concept, Values and Threats, Biosystematics in Biodiversity Conservation, Bio-cultural Diversity, Global Extinctions, Online Resources on Biodiversity, Traditional and Mobile App Based Data Collection for Biodiversity Assessment, Biodiversity and Green Skill Development.

Unit-II:

Biogeography, Population Ecology and Ecosystem Dynamics, Ecosystem Services, Ecology and Management of Pollinators, Integrated Pest Management, Zoonotic Diseases and One Health Programme, Ecological Principles in Artificial Intelligence, Carbon Foot Prints.

Unit-III: Invasion Ecology, Landscape Ecology, Restoration Ecology, Captivity Ecology, Urban Heat Islands, Biomimicry.

Unit-IV: Wildlife Management, Protected Area Networks, Ecosystem Approaches in Conservation, Urban Planning Towards Biodiversity Conservation, Practicing Sustainable Living to meet SDG Goals.

Group Discussions (Evaluative): Considering any current Environmental Problems.

Assignment (Evaluative): Field/ Lab Based.

Course Outcomes:

- Sensitization towards biodiversity values for sustenance of life on earth.
- Understanding the approaches for biodiversity data collection and green skill development.
- To create awareness about human Impact on environment and utilize ecological principles and concepts to assist in solving real-world issues, typically management of resource.
- To prepare the learners to follow sustainable life style towards protection of environment and biodiversity conservation.

Number of hours: 45

The course will be in offline mode. However, some lectures may be in online mode.

Target group: UG, PG students; NGOs working on Environment and Health Sectors; Staffs of Forest Departments, Other Government Officials in Related Field and Policy Making.

Eligibility: Senior Secondary level (+2)

Fees: Rs 15,000/

Certificate Details: Participant have to appear for One Minor and one Major exam as per University Rules and achieve a minimum of 40% marks for getting a certificate.

