

Certificate course on Para-taxonomy [including Peoples Bio-diversity Register (PBRs)]

The course aims to impart intensive training for identification/authentication of floral and faunal diversity in different ecosystems such as terrestrial, aquatic and marine. The course broadly covers plant diversity, collection and identification of different plant groups, processing and preservation of plant specimens (Herbarium Technique), Eco-restoration of natural habitats, in situ and ex situ Conservation, medicinal plants & diversity, folk nomenclature/taxonomy & medicinal plants, field identification of medicinal plants species (vegetative and floral parts), traditional knowledge and documentation and conservation efforts, science of taxonomy (basic), importance of taxonomy, taxonomic collections, taxonomic survey and assessment of vertebrates, basics of interpretation of biodiversity data using Biodiversity indices, flora and fauna in marine ecosystem, sea and coastal plants, coastal and marine invertebrates, wetland ecosystems and services, importance and classification, characteristics of wetlands, wetlands conservation and management, etc.

Course Duration: 550 hours

Outcome of the Course: The candidates successfully completing the course would be certified as “Para-taxonomists” and may become employable* in BSI, ZSI, SACON, FRI, ICFRE, WCCB Regional Offices, Biodiversity Management Committees for preparation of PBRs, wildlife sanctuaries, national parks, biosphere reserves, Botanical Gardens, Bird Sanctuaries, Nurseries, wetland sites, etc.

The trained manpower may also become Master Trainers in the field of Para-taxonomy to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Pollution Monitoring (Air & Water/Soil Pollution)

The course on pollution monitoring aims to provide a comprehensive understanding of all aspects of air & water pollution/soil pollution, its management and control and to impart basic skill to the participants regarding the air and water pollution monitoring and handling basic equipments in the pursuit. The course describes the underpinning basic science of the atmosphere, both its physics and its chemistry, needed to understand air pollution and its dispersal. It explains the causes and the effects/impacts of air pollution. The course also covers structure of hydrosphere, water chemistry sources of surface/ ground/lake/river/coastal & marine water pollution, monitoring techniques & analysis of water pollutants, water quality management, impact of water pollution on health, etc.

The course on soil pollution focuses on types of soil pollution and its mitigation, sources of soil pollutants (biological, agricultural, radioactive, urban and industrial) and their toxicity, soil sampling and procedures, Soil quality & its relation to human health, soil quality assessment, etc.

Course Duration:

Air & Water Pollution Monitoring: 260 hours

Soil Pollution: 120 hours

Outcome of the Course: The candidates successfully completing the course would be certified as “Pollution Monitors” and become employable* in Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs), Municipal Corporations, EIA and Eco-Auditing tasks and projects and surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on ETP/STP/CETP Operation and Maintenance

The course mainly focuses on imparting knowledge of operation, maintenance and monitoring of Effluent Treatment Plant (ETP)/Common ETPs/Sewage Treatment Plant (STP), various treatment process (preliminary, primary, secondary and tertiary treatment), environment standards, treatment plant’s equipments, occupational health & safety management, technical know-how on ETP/CETP/STP technologies, sludge management, etc.

Course Duration: 300 hours

Outcome of the Course: The candidates successfully completing the course would be certified as “ETP Operators” and become employable* in ETP/STP/CETP Plants in Industries, Municipal Corporations, SPCBs, State Development Authorities, etc.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Waste Management

(Solid Waste, Biomedical Waste, Plastic Waste, E-Waste, Construction & Demolition Waste)

The course aims to provide a comprehensive understanding and impart basic skills to the participants on the characteristics of waste, waste segregation and collection, storage and disposal, waste processing techniques and integrated waste management, gravity and

importance of the waste management sector, knowledge and first-hand experience in collection, segregation, waste disposal and integrated waste management. The course would broadly cover handling and safe management of different types of wastes viz. Solid Waste, Biomedical Waste, Plastic Waste, E-Waste, Construction & Demolition Waste.

Course Duration: 550 hours

Outcome of the Course: The trained manpower would become employable* in different Urban Local Bodies, Municipal Corporations/Councils, Private Companies who deals in waste management, etc.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course in Valuation of Ecosystem Services and Green GDP

Forest ecosystems are critical habitats for diverse biological diversity and perform array of ecological services that provide food, water, shelter, aesthetic beauty, etc. Valuation of the services and goods provided by the forest ecosystem can help in the micro level policy design for the conservation and sustainable management of ecosystems. Main objective is to value the ecosystems goods and services. This involves assessment of total economic value (TEV) of the ecosystem considering provisioning, regulating, supporting and information services provided by the ecosystem. The course aims to provide a comprehensive understanding of ecosystems, basic characteristics of ecosystems, quantification of goods and services, valuation of goods and services, valuation techniques, assessment of Green GDP etc.

Course Duration: 105 hours

Outcome of the Course: The underlying case for the valuation of ecosystem services is that it will contribute towards better decision-making, ensuring that policy appraisals fully take into account the costs and benefits to the natural environment. The trainees can be employed in research and academic institutions and may be engaged in survey under GRIDSS, etc.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Forest Fire Management

The course aims to provide a comprehensive understanding of all aspects of forest fire management and to impart basic skill to the participants regarding the handling of forest fires with techniques/equipment in the pursuit. It explains the causes and the effects/impacts of

forest fires, forest degradation and its impact on ecosystem, forest fire safety tips, forest fire monitoring, application of remote sensing and GIS in forest fire, etc.

Course Duration: 240 hours

Outcome of the Course: The course would facilitate development of Forest Disaster preparedness, Mitigation & Management, leadership among individuals who will be able to contribute in generating awareness and up-gradation for sustainable development. The candidates successfully completing the course become employable in State/UT Forest Departments, National Parks and Sanctuaries, Nagar Nigam/Nagar Palika and Disaster Management entities.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Water Budgeting & Auditing

Water scarcity has reached alarming proportions with some areas being severely water stressed. There is need to review the existing water sources, water supply systems and current water use efficiencies in various sectors. Sustainable water use demands that we look at treated waste water as a resource and develop strategies for water audit and assessment of water demands. This course is designed to equip students with such kind of knowledge and skills. The main objectives of the course are to introduce students to water demand management concepts including techniques to assess water demand for various sectors, use water audit as an efficient water management tool, challenges in implementation of water audit in various sectors, current water usage practices and required interventions.

Course Duration: 200 hours

Outcome of the Course: The candidates successfully completing the course would be certified as “Water Auditors” and become employable* in urban local bodies/Panchayats in rural areas and industries/water treatment plants, research institutions etc.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course in River Dolphin Conservation

The course aims to provide a comprehensive understanding of Mega Charismatic fauna of River Dolphin and to promote dolphin research. The course focuses on providing comprehensive knowledge about Gangetic Dolphin national aquatic animal of India and importance of Gangetic Dolphin available in Indian River (Ganga and its tributaries), Dolphin survey, sex identification, local migration, different threats, monitoring, dolphin photography, study of morphology and preservation of Gangetic dolphin sample.

Course Duration: 80 hours

Outcome of the Course: The students develop expertise to become employable* in ZSI and various research institutions.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course in Community based conservation of Mangroves Ecosystem

Mangroves comprise a diverse group of largely tropical trees and shrubs that live in the intertidal areas of sheltered marine shores, estuaries and tidal creeks and thus create an ecological bridge between terrestrial and marine ecosystems that are a rich repository of biodiversity. Mangroves protect coastlines from the damaging effects of wave action and tropical storms. At regional and global level, mangroves assist in carbon sequestration and help mitigate climate change. The overall objective of the course is to improve the sustainable development and conservation of mangrove forests in order to enhance the productivity of natural resources, particularly in ways that would sustain a continuous flow of desired forest products and services.

Course Duration: 215 hours

Outcome of the Course: Developing mangrove plantations requires trained manpower inputs, right from sowing at the nursery to planting, gap filling and maintenance. This course would help the coastal communities to build their capacity in mangrove restoration and demonstrate the feasibility of reducing pressure on mangrove forests through the creation of alternative livelihood activities such as beekeeping, and integrated aquaculture etc. The candidates may become employable* in nurseries and Government Forest Departments.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Sustain and Enhance Technical Knowledge in Solar Energy Systems

Climate change has implications for both human and natural systems and could lead to significant changes in resource use production and economic activity. The global concern for sustainable development and climate change has brought concentration of energy policy makers towards the renewable energy sources since these provide energy, without emissions of greenhouse gases (GHGs) and are also abundant resource available for future. Solar Energy is used today in a number of ways and by various individuals, households, offices, businesses, etc. With the growing use of solar equipments, the technical knowledge for their maintenance becomes necessary. The course meticulously covers solar energy concepts, basic electrical principles and their usage, solar PV modules, practical knowledge of types, sizes and specifications of modules/panels and their handling, functioning of solar power plant (other technologies) and its components, etc.

Course Duration: 240 hours

Outcome of the Course: The training programme aims to bridge the gap between theoretical learning and implementation of knowledge with requisite technical expertise for taking on detailed Solar PV plant designing. The course promotes entrepreneurship and serves as base for livelihood development. The trained youth may also become employable* in various industries involved in manufacturing of the solar equipments and their maintenance.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Plantation Techniques and utilization of Renewable Energy in Arid Zone

The techniques associated with plantation and its management in arid climate is of specific importance particularly for raising nursery of grass, silvi and fruit plants including budding and drafting techniques. The course broadly covers importance of planting techniques in desert; nutrient, pest & disease, rodent management in arid zone plants; value addition to arid zone plants; water harvesting techniques and management; principles of solar thermal technology for value addition to agricultural produces; etc.

Course Duration: 180 hours

Outcome of the Course: Trainees would get the overall idea about plantation techniques and the significance of its applications in arid zone. The trainees would also learn about solar gadgets/ equipments of various types involving its fabrication and wider application. The

trainees may become employable* as Plantation Technique Expert in Nurseries, Solar Gadget Fabricator cum Operator and researcher in institutions. The course also promotes entrepreneurship and serves as base for livelihood development.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Bird Identification and basic ornithology

The course aims to impart skills to identify birds based on key field characteristics for locally available birds. The course broadly covers bird evolution and history, bird classification and diversity, birds' behaviour and their habitats, adaptation in birds, importance of birds in ecosystem or food chain, bird conservation and bird tourism as a livelihood option.

Course Duration: 160 hours

Outcome of the Course: The trained person would have enough knowledge about the birds of surrounding forest, wetland, grassland or respective habitat. The trainees would have general knowledge about avifauna which would make them employable* as Bird guide, Eco-tourist guide, Forest watcher, Future conservationist, Field assistant in biodiversity research organization, Wildlife Sanctuaries, National Parks. The trained person can also be part of Environmental Impact Assessment (EIA) team.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Bird Migration and Migration Study Techniques

Bird migration is necessary to understand changing trends of birds' arrival in India during migration. The course aims to impart knowledge on different types of migration patterns, linkage of breeding, staging and wintering sites, bird capture techniques, bird handling techniques, bird ringing exercise, bird monitoring protocols, important bird areas and disease surveillance.

Course Duration: 186 hours

Outcome of the Course: The trainee would gain baseline knowledge on the concept of migration, flyways and wetland connectivity. The trained person may become employable* as Bird guide, Future conservationist, Field assistant in biodiversity research organization, wild bird handler, Banding field assistant, assistance for Biodiversity Management Committee, PBR studies. They may also participate in bird monitoring, census or marching programmes; carry out independent bird surveys and collect habitat assessment parameters for wetland management activities.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Laboratory technicians/ Technical Assistants for energy efficiency, star labeling and other electrical testing for environmental criteria

The aim of the course is to impart basic knowledge on the concepts of star labelling criteria and eco friendly practices adopted by industry in NABL accredited, BIS recognised laboratory. The course broadly covers basic Laboratory Equipments, their functions and maintenance, standard operating test procedures and quality procedures, safety standards and laboratory accreditation, laboratory instruments, test system and environmental criteria.

Course Duration: 264 hours

Outcome of the Course: The trainees would get basic knowledge about the instruments and equipments used for conducting safety, performance, convenience and test for ECO criteria. The trained person may become employable* as Technical Assistant in the small and medium industries as well as in university labs and other certified labs.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Laboratory Assistant for Eco-friendly Food Testing Laboratory

The course mainly focuses on imparting knowledge of eco-friendly food testing laboratory practices. It covers areas of food, nutritional aspects and safety standards, eco friendly maintenance of laboratory practice, laboratory accreditation, laboratory safety equipment and their functions, eco friendly laboratory waste management.

Course Duration: 225 hours

Outcome of the Course: The trainees may become employable* as Laboratory Assistant in the food processing units as well as certified lab in the food sectors.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Plant Tissue Culture Techniques and its Applications

The course mainly focuses on imparting knowledge on plant tissue culture techniques and management of tissue culture laboratory. The course covers history of plant tissue culture, application of plant tissue culture, aseptic techniques, maintenance of aseptic conditions, handling of equipment and maintenance (analytical balance, autoclave, laminar air flow, hot air oven) and other basic tools.

Course Duration: 108 hours

Outcome of the Course: The trained manpower may become employable* as tissue culture technicians or technical assistants in horticulture, forest departments, commercial labs, Universities, Herbal Garden, Regional and National Plants Board with the specialized knowledge of Plant Tissue culture techniques and their practical application.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Emission inventory

Emissions are the term used to describe the gases and particles which are put into the air or emitted by various sources. An emission inventory is a listing, by source, of the amounts of pollutants actually or potentially discharged. Pollutants are added to the environment through emissions of various natural as well as anthropogenic sources. In this context, Emission inventories are now regarded as indispensable tools for a wide range of environmental measures such as management of chemicals as well as the prevention of air pollution. The course is designed to impart knowledge on development of emission inventory, methodology of emission inventory development and GIS based statistical Modelling for emissions.

Course Duration: 80 hours

Outcome of the Course: The candidates successfully completing the course may become employable* in Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs), Municipal Corporations, EIA related Firms & Labs and Research Institutions/organisations.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Wildlife Management using Geospatial Techniques

The course aims at imparting knowledge and skills on Remote Sensing, GIS & GPS with their use and applications in the wildlife management field. Specific topics to be covered under the course are Overview of Remote Sensing & GIS techniques, Wildlife Management and its applications using GIS, Processing and Classification of Remotely Sensed Images, Global Navigation Satellite System, GIS Database Creation and GIS Analysis, Output and Project Design.

Course Duration: 80 hours

Outcome of the Course: Trainees would get the overall idea of Wildlife Management and its applications, different types of geospatial queries and models, their properties and importance. They would be able to identify the possible threats to the wildlife and techniques with the help of geospatial analysis. The candidates successfully completing the course would be certified as “Wildlife Managers” and may become employable* in BSI, ZSI, SACON, FRI, ICFRE, FSI, IIFM, IGNFA, WII, Central Zoo Authority, WCCB Regional Offices, National Biodiversity Authority, NTCA, wildlife sanctuaries, national parks, biosphere reserves, Botanical Gardens, etc.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Monitoring Ecosystem Health using Invertebrates

The course aims to inculcate skills to identify, collect data, develop database, analyse data, interpret results and write report on invertebrate diversity for monitoring ecosystem health. The course broadly focuses on modern classification and diversity of invertebrates, principals of animal taxonomy, use of modern digital microscopes for invertebrate research, field survey techniques in invertebrate monitoring, laboratory techniques for invertebrate studies.

Course Duration: 160 hours

Outcome of the Course: The candidates successfully completing the course may become employable* in ZSI, EIA agencies, Forest Departments, NGOs and other research institutions.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Cleaner Production Assessment

Cleaner production is a preventive environmental protection initiative, which emphasizes on reduction of generation of wastage; rather than to treat the generated waste. It is intended to minimize waste and emissions and maximize product output. Implementation of Cleaner Production helps to reduce the use of materials and energy, and to avoid waste, waste water generation, and gaseous emissions, and also waste heat and noise and provides better choices for improved processes. The trainees would learn about concepts and principles of cleaner production, cleaner production tools and methodology.

Course Duration: 85 hours

Outcome of the Course: The candidates successfully completing the course may become employable* in Environment Departments and different industrial sectors such as Chemical-Dyes and dye intermediate, Pharmaceuticals, Textile, Pulp & Paper including Recycle paper manufacturing, Hotels, Hospitals, Ceramic & Glass, etc.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Greenbelt Development for Industries

Industry specific and pollutant specific greenbelt techniques are essential for mitigation for industrial pollution. Greenbelt is a strip of vegetation for which species of trees and shrubs are scientifically chosen and planted to serve a designated purpose such as control of wind erosion, of dust, of noise etc. In the context of air pollution attenuation, greenbelts must be developed around a source of air pollutant emission in a manner so as to effectively reduce the pollution caused by that source. Design of effective greenbelts involves consideration and analysis of meteorological, physico-chemical, biological, and horticultural aspects relevant to air pollutant source, and the area where greenbelt has to be established. The course would broadly cover greenbelt and its significance, plants and mitigation of pollution, nursery and propagation of greenbelt plants, and modelling of greenbelt and plantation design.

Course Duration: 180 hours

Outcome of the Course: The candidates successfully completing the course may become employable* in industrial units, NHAI, Railways and Urban Local Bodies.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on City Environmental Surveyor

City Environment Surveyor is the use of rapid assistance to facilitate quick Environmental Auditing in the practice of Environmental Impact Assessment of a project. The course aims at imparting skills to conduct monitoring/ survey, record of observations and preparation of checklist for a construction or operation of a project. The course would also impart methods to monitor and survey the actions outlined in the Environmental Management Plans associated with EIA to ensure Environment Protection in Development Projects.

Course Duration: 360 hours

Outcome of the Course: The candidates successfully completing the course would be certified as “City Environment Surveyor” and may become employable* in different environmental sectors of various government organizations/ project proponents, Pollution Control Board, Environmental Cell in States/UTs, Development Authorities and Municipal Corporations/Councils.

The trained manpower may also become Master Trainers in the field to further skill other youth; they may also be engaged on contractual basis in conducting district surveys under GRIDSS programme of the ENVIS Scheme.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

**Certificate Course on Paralegal Practices
(Forestry Acts and Policy/Environmental Laws)**

The course on Forestry Acts and Policy mainly focuses on Forest (Conservation) Clearance and Wildlife Clearance. The course covers broad areas of Forest Conservation Act and basic concepts, important guidelines concerning diversion like linear projects, mining, defence projects, stages of approval and compliances, Wildlife Protection Act and basics concepts, wildlife clearance – need and applicability, projects and user agency, stages of clearance, etc.

The course on Environmental Law is designed to help in understating of environmental concept, form awareness of environmental rights and issues. The course broadly covers importance of law as an instrument to protect environment, environmental protection – constitutional imperatives, policies on environmental protection, legal frame work for environmental protection, environmental protection and remedies, role of various agencies in promoting environmental protection and environmental justice & environmental auditing.

Course Duration:

Forestry Acts and Policy: 80 hours

Environmental Laws: 80 hours

Outcome of the Course: The candidates successfully completing the course may become employable* as Para legal assistants, Wildlife/Forest Clearance assistants, Consultants in Facilitation Centres in State Forest Department/Law firms.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.

Certificate Course on Forest Entomology & Pest Control

The course aims to impart knowledge of forest pathology, forest entomology and management of alien invasive species. The course would broadly address different types of important nursery pathogens and disease etiology, disease management principles, habits & role of insects in forest eco-system, alien invasive species, methods of increasing soil health using bio fertilizers, management of pests and diseases using biological methods.

Course Duration: 108 hours

Outcome of the Course: The trained manpower would be able to identify rich diversity of insects and would help protect natural forests and forest plantations from the threat of insect pests. The candidates successfully completing the course may become employable* in the tourism, cultural and forest departments; research institutions dealing with forestry programmes on conservation, biodiversity and climate change monitoring; and Pest control Agencies.

Note: * - Terms and conditions of employment will be decided by the Institute/Office concerned.