

“Rayat Shikshan Sanstha’s”

SADGURU GADAGE MAHARAJ COLLEGE KARAD



Accredited By NAAC with ‘A+’ Grade

An Autonomous College



[Affiliated to Shivaji University, Kolhapur]

CHOICE BASED CREDIT SYSTEM

Syllabus For

Environmental Studies

Compulsory Paper for All Undergraduate Programme Part - II

(Syllabus to be implemented from June, 2022 Onwards.)

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2022-23

Module I: Nature of Environmental Studies: (3 lectures)

Definition, scope and importance, Multidisciplinary nature of environmental studies
Need for public awareness, Concept of sustainability, Sustainable development and it’s goals with Indian context.

Module II: Ecosystems: (9 lectures)

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids.

Introduction, types, characteristics features, structure and function of the following ecosystem :- a) Forest ecosystem, b) Grassland ecosystem, c) Desert ecosystem, d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Degradation of the ecosystems and it’s impacts.

Module III: Natural Resources and Associated Problems: (8 lectures)

a) Forest resources: Use and over-exploitation, deforestation, dams and their effects on forests and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) Mineral resources: Usage and exploitation. Environmental effects of extracting and using mineral resources.

d) Food resources: World food problem, changes caused by agriculture, effect of modern agriculture, fertilizer-pesticide problems.

e) Energy resources: Growing energy needs, renewable and non- renewable energy resources, use of alternate energy sources. Solar energy, Biomass energy, Nuclear energy.

f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Consumerism, ecological foot prints, carbon foot prints, carbon credits.

Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

Module IV: Biodiversity and its conservation: (8 lectures)

Introduction- Definition: genetic, species and ecosystem diversity, Bio-geographical classification of India. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. India as a mega- diversity nation. Western Ghat as a biodiversity region. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man- wildlife conflicts, Endangered and endemic species of India, Conservation of biodiversity: In-situ and Exsitu conservation of biodiversity. Convention on Biological Diversity.

Module V: Environmental Pollution: (8 lectures)

Definition: Causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards. Global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Solid waste management control rules. Role of an individual in prevention of pollution.

Module VI: Social Issues and the Environment: (9 lectures)

Human population growth, impact on environment. Human Health and welfare. Environmental ethics: Role of Indian religious traditions and culture in conservation of the environment. Environmental movements- Chipko Movement, Appiko Movement, Silent Valley. Resettlement and rehabilitation of people; its problems and concerns. Water conservation, rain water harvesting, watershed management. water conservation by Dr.Rajendra Singh, Anna Hazare etc. Disaster management: floods, earthquake, cyclone, tsunami and landslides. Wasteland reclamation. Environmental communication and public awareness, case studies.

Module VII: Environmental Protection- Policies and practises: (5 lectures)

Environmental Protection Act: Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, National and International conventions and agreements on environment.

Module VIII: Field Work: (10 lectures)

Visit to a local area to document environmental assets-
River/forest/grassland/hill/mountain.

or

Visit to a local polluted site – Urban/Rural/Industrial/Agricultural

or

Study of common plants, insects, birds.

or

Study of simple ecosystems - ponds, river, hill slopes, etc.

(Field work is equal to 10 lecture hours)

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- 23) Paryavaran shastra – Gholap T.N.
- 24) Paryavaran Sahastra – Gharapure

M) Magazine (R) Reference (TB) Textbook