

Annexure – III

Environmental Studies

Course Code: MCST1C004T

Course Title: Environmental Studies

Semester: I

Credits: 0

Rationale

The objective(s) of the course is to present an introduction to environmental policies, evolution of environmental legislation in India, environmental standards etc. with an emphasis on how to understand relationship between environmental policy and environmental acts for sustainable management of environmental resources.

Course Outline

Contents	No of Lectures
<p style="text-align: center;"><u>Unit-I</u></p> <p>The Environment and Ecosystem: Environment – definition, concept, components of environment (atmosphere, lithosphere, hydrosphere) Environmental studies- definition, concept, importance/need/objective, and scope. Environmental studies as a multi-disciplinary subject. Structure of Ecosystem- definition, concept, components of ecosystem and types. Ecology-definition, synecology and autecology. Functions of Ecosystem- productivity, energy flow, biogeochemical cycles (Carbon and Nitrogen cycle). Food chain, food web, ecological pyramids, ecological succession.</p>	10
<p style="text-align: center;"><u>Unit-II</u></p> <p>Biodiversity, Natural resources and their conservation: Biodiversity- definition, concept, levels of biodiversity, values of biodiversity. Hotspots of biodiversity, Concept of endemic species. Threats to biodiversity. Conservation of biodiversity: in-situ and ex-situ. Natural resources- definition, concept and types. Forest resources- Uses, causes of exploitation, Mining and its impacts on forests and tribal people. Water resources- Uses, causes of exploitation and over utilization. National and International efforts – Stockholm 1972, Rio 1992, Kyoto protocol, Montreal protocol, Paris agreement, wildlife protection act 1972, environment Protection act 1986, National Green Tribunal.</p>	10

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Unit-III**Environment Pollution and Laws in India:**

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Air pollution: definition, concept, sources, effects and control.
 Water pollution: definition, concept, sources, effects and control.
 Noise pollution: definition, concept, sources, effects and control.
 Green-house effect, Global warming-consequences. Acid rain- causes, formation, effects.
 Introduction and main provisions of: Air (prevention and control of pollution) Act, 1981; Water (prevention and control of pollution) Act, 1974; Solid waste Management and handling rules 2016, Bio-medical waste Management and handling rules 2016.

Course Outcomes

After completion of course, students will have:

- Fundamental knowledge of environmental policy and legislation.
- broad understanding of environmental importance of environmental movements for restoration and conservation of natural resources.
- Knowledge of legal aspects relating to hazardous and toxic substances management, handling rules etc.
- Understanding the Fundamentals and importance of ecology and microbiology in the environment
- Proper Understanding of the nature and characteristics of water, noise and air pollution and basic concepts of their control management.

Text Books

1. Boubel, R. W., Vallero, D., Fox, D. L., Turner, B., & Stern, A. C. Fundamentals of air pollution 4th edition Elsevier, 2008
2. Environmental Legislation in India, Ulla Roiha, Finpro, Region Asia

Reference Books

1. Pollution control acts, rules and notifications issued thereunder, CPCB-India
2. Handbook of Environmental laws, Acts, Guidelines, Compliances & Standards Policy, Trivedy, BS Publishers
3. Spellman, F. R., Whiting, N. E., (2004). ENVIRONMENTAL ENGINEER'S MATHEMATICS HANDBOOK by CRC Press.
4. Environmental Engineering-II, S K Garg, Khanna Publishers, India
5. Peavy, H. S., Rowe, D. R., & Tchobanoglous, G. (2010). Environmental Engineering. New York: McGraw-Hill
6. Encyclopaedia of Biodiversity, Academic Press, Simonson Asher Levin.