

ENVIRONMENTAL SCIENCE / ENVIRONMENTAL STUDIES for Semester III & IV

Course Code: 3SH208VE Course Name: Environmental Science

[Common for all the branches of Engineering & Technology as per NEP-2020)

Course Outcomes:

Upon successful completion of the course the students will be able to:

1. Understand the multidisciplinary nature of environment and Renewable and non-renewable resources
2. Understand natural environment and its relationship with human activities.
3. Understand the basic concepts and problems and follow sustainable development practices.

SYLLABUS

Unit I: Renewable and non-renewable resources Environmental Science, Definition, scope and importance, Need for public awareness, Renewable and non-renewable resources, Natural resources and associated problems. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable life styles.

Unit II: Ecosystems: 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, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem.

Unit III: Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions, Environment Protection Act. Air (Prevention and Control of Pollution) Act., Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, public awareness.

Text Books:

1. Textbook for Environmental studies by Erach Bharucha for UGC
2. Textbook of Environmental studies by Shanta Satyanarayan, Dr. Suresh Zade, Allied Publishers

Reference Books:

1. 'Essentials of Ecology and Environmental Science' by Dr. S. V. S. Rana, PHI Learning Pvt. Ltd, Delhi
2. 'Environmental Chemistry' by Anil Kumar De, Wiley Eastern Limited
3. 'Environmental Science' by T.G. Miller, Wadsworth Publishing Co, 13th edition.
4. 'Ecology and Environment' by P. D. Sharma, Rastogi publications
5. 'Fundamental concepts in Environmental studies' by Dr. D.D. Mishra. S. Chand publications
6. 'Perspectives in environmental Studies' by A. Kaushik and C. P. Kaushik. New Age International (P) Limited.
