

SRI VENKATESWARA UNIVERSITY - TIRUPATI
ENVIRONMENTAL SCIENCE: (MINOR)
w.e.f 2023-24 AY
II SEMESTER
INTRODUCTION TO ENVIRONMENTAL SCIENCES

Course Outcomes: On successful completion of the course, the students will be able to Understanding the historical significance of Environment mainly focuses on the fundamentals concept. It provides basic knowledge of environment and its components including environmental ethics and current problems. This course also helps in understanding the current environmental problems.

UNIT – I

(10 lectures)

Introduction to Environmental Science: Definition, Aim, and scope of environmental science, Understanding of environment and measurements. Differences between Ecology and Environmental Science; Various approaches of studying Environmental Science. Components of the Environment: Definitions of Atmosphere, Hydrosphere, Lithosphere and Biosphere - their complex interactions and significance.

Unit 2 : Ecosystems

(10 lectures)

What is an ecosystem, Structure and function of an ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems : Forest ecosystem , Grassland ecosystem , Desert ecosystem and Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit - 3 : Environmental Pollution
lectures)

(10

Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution

Global climatic changes: global warming, depletion of ozone layer and acid rains effects and control measures.
Nuclear hazards and human health risks

Unit - 4

(10 lectures)

Human impact on environment and its consequences:

Population explosion, degradation of natural resources, deforestation, urbanization, industrialization, food security, public health, energy crises.

**Unit - 5
lectures)**

(5

Solid waste management: Municipal and industrial waste, waste water treatment methods

Reference Books:

- (i) Chapman J.L. & Reiss M.J. Ecology: Principles and Applications' Cambridge University Press, U.K, 2nd Edition.
- (ii) Cunningham W.P. & Saigo S.W. Environmental Science: A Global Concern' WCB, McGraw Hill, 1st Edition.
- (iii) Introduction to Environmental Science by Y.Anjaneyulu. BS Publications. 3rd Edition reprint

Course Outcomes

- The ability of the students to understand the environment enhances and makes them think about sustainable development
- Gains theoretical knowledge on environment and its measurements.
- Improves knowledge on Environmental Ethics, Philosophy of environment for better lifestyle

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SEMESTER-II

COURSE : ENVIRONMENTAL SCIENCES

Practical

2 hrs/week

1. Introduction to basic instruments
2. Sampling equipment
3. Sampling collection
4. Preservation and handling
5. Types of analysis
6. Sampling Soils and Sediments
7. Sampling Air
8. Sampling water
9. Physical properties of water
10. Analysis of pH in a given water samples
11. Demonstration of composting techniques including vermicomposting

References:

1. Manual on water & wastewater analysis, National Environmental Engineering Research Institute, Nehru Marg, Nagpur
2. Singh, J and Ramanathan, AL 2009. Solid Waste Management: Present and Future Challenges
3. Arceivala. Waste water treatment for pollution control. Tata Mc Graw Hill
4. Chatwal, Anand. Instrumental Methods of Analysis. Schneid, T.D. & Collins, L. 2001. Disaster Management and Preparedness. Lewis Publishers, New York, NY.