17SH2107- ENVIRONMENTAL STUDIES

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| **Course Category:** | Professional core | **Credits:** | 0 |
| **Course Type:** | Theory | **Lecture – Tutorial – Practical:** | 3-0-0 |
| **Prerequisite:** | Basic idea on environment,Environmental pollution causes, effects, and control measures. | **Sessional Evaluation:****Univ.Exam Evaluation:****Total Marks:** | 4060100 |
| **Objectives** | * To know the importance of Environmental studies and understand the various components of environment components
* To know the value of natural resources and need to protect them.
* To know the value of biodiversity and it conservation methods.
* To design engineering methods and solve problems related to environmental pollution.
* To understand the social issues and provide plans to minimize the problems.
* To understand need to protect various environmental acts.
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| **Course Outcomes** | Upon successful completion of the course, the students will be able to: |
| CO1 | To know the importance of Environmental studies and understand the various components of environment. |
| CO2 | Understand the value of natural resources |
| CO3 | Understand the value of biodiversity and need to protect. |
| CO4 | Understand how the environment is polluted and suggest some control measures. |
| CO5 | Understands the several environmental problems in India and way to minimize the effects. |
| CO6 | Knowing the environmental protection laws in our country and understand the need to respect those laws. |
| **Course Content** | UNIT-I**Introduction:** Definition, Scope and Importance of Environmental studies, Environmental Components.UNIT-II**Environment and Natural resources management:**1. Land resources: Importance, Land degradation, Soil erosion and desertification, Effects of modern agriculture (fertilizer and pesticideproblems).
2. Forest Resources: Use and over-exploitation-Mining and Dams-their effects on forest and tribalpeople.
3. Water Resources: Use and over-utilization of surface and ground water, Floods and droughts, Rain water harvesting, clouds seeding and watershedmanagement.
4. Energy resources: Energy needs - Renewable and non-renewable energy, need to use of alternate energy sources, Impact of energy use onenvironment.

UNIT-III**Ecosystem:** Introduction, types, characteristics and functions of Ecosystems**Bio-diversity and its conservation:** Value of bio-diversity- consumptive and productive use, social, ethical, aesthetic and option values - Threats to biodiversity- conservation of biodiversity.UNIT-IV**Environmental Pollution:** Causes, Effects and control measures of Air pollution, Water Pollution, Soil pollution, Marine Pollution, Noise pollution, Nature of Thermal pollution and nuclear hazards, Global warming, Acid rain, Ozone depletion.**Solid waste management**: Composting, Vermiculture - Urban and industrial wastes, recycling and reuse..UNIT-V**Environmental Problems in India:** Drinking water, Sanitation and public health -Effects of urbanization, Transportation, Industrialization on the quality of environment-Social Issues.**Economy and Environment**: The economy and environment interaction, Sustainability, Environment Impact Assessment, UNIT-VI**Environmental Acts:** Water (Prevention and control of pollution) Act-Air (Prevention and control of pollution) Act – Environment protection Act, Wildlife protection Act, Forest conservation Act.**Case Studies:** Silent valley project, Madhura Refinery and TajMahal, Tehri Dam, Kolleru Lake Aquaculture, Fluorosis in Andhra Pradesh.**Field Work:** Visit to Local Area having river/Forest/grass land/hill/mountain to document and environmental assets. |
| **Text Books and References:** | **Text Books:**1. “Environmental science” by AnubhaKaushik and C.P.Kaushik.
2. “Environmental science and Engineering” by P.Anandan and R.K.Kumaravelan.

**Reference Books:**1. .“Introduction to Environmental science” by Y.Anjaneyulu.
2. “Environmental studies” byDrB.S.Chauhan.
3. “Environmental science” by M.Chandrasekhar
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| **E-Resources** | 1. [**https://nptel.ac.in/courses**](https://nptel.ac.in/courses)
2. [**https://freevideolectures.com/university/iitm**](https://freevideolectures.com/university/iitm)
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