**17MC2101-ENVIRONMENTAL STUDIES**

**(Common to ECE, EEE, CSE & IT)**

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| **Course Category:** | Mandatory course | **Credits:** | 0 |
| **Course Type:** | Theory | **Lecture-Tutorial-Practical:** | 3-0-0 |
| **Pre-requisite:** | Basic idea on environment,  Environmental pollution causes, effects, and control measures. | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course Objectives** | Students undergoing this course are expected to learn: | |
| 1. The importance of Environmental studies and the various components of environment. 2. The value of natural resources and need to protect them. 3. The value of biodiversity and it conservation methods. 4. To design engineering methods and solve problems related to environmental pollution. 5. The social issues and provide plans to minimize the problems. 6. The need to protect various environmental acts. | |
| **Course Outcomes** | Upon successful completion of the course , the students will 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 | Understand 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 pesticide problems). 2. Forest Resources: Use and over-exploitation-Mining and Dams-their effects on forest and tribal people. 3. Water Resources: Use and over-utilization of surface and ground water, Floods and droughts, Rainwater harvesting, clouds seeding and watershed management. 4. Energy resources: Energy needs - Renewable and non-renewable energy, need to use of alternate energy sources, Impact of energy use on environment.     **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 Taj Mahal, 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 & Reference Books** | **TEXT BOOKS:**   1. “Environmental science”, by Anubha Kaushik and C.P.Kaushik. 2. “Environmental science and Engineering”, by P.Anandan and R.Kumaravelan.   **REFERENCE BOOKS:**   1. “Introduction of Environmental science”, by Y.Anjaneyulu. 2. “Environmental studies”, by Dr B.S.Chauhan. 3. “Environmental science”, by M.Chandra sekhar. | |
| **E-Resources** | http://nptel.ac.in/courses | |