



## GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

### ENVIRONMENTAL SCIENCE

Course Code: GR15A2001  
II Year II Semester

L:4 T:0 P:0 C:0

#### Course objectives

- To understand about the importance and scope of Environment.
- To identify, analyze and solve the problems in Environment.
- To participate in team oriented activities aiding constructive thinking and recognize the value of continuing education.

#### Course outcomes

- Students will be able to realize the significance of Green development and Wild life protection.
- Students will be able to apply fundamentals of cleanliness and importance of natural resources.
- Students will be able to adopt, grasp and absorb knowledge across disciplines and ability to integrate within research areas of Environmental protection.

#### Unit-I

**Introduction to Environment, Ecology and Ecosystems:** Definition, Importance and Scope of Environmental Studies, Public Awareness and Participation. Ecology, Concept of Ecosystem, Classification of Ecosystem, Structure, Components and Function of Ecosystem. Typical Ecosystem, Food Chain, Food Web. Biodiversity- Types and values.

#### Unit-II

**Natural Resources:** Definition, Occurrence, Classification of resources, Important natural resources for human society, Utilization-positive and negative effects of Water resources, Mineral resources, Forest resources, Energy resources, Land resources. Role of individuals in conservation of important natural resources.

#### Unit-III

**Environmental Pollution:** Definition, Classification of Pollution, Types of Pollution and Pollutants. Causes, effects and control of – Air Pollution, Water Pollution, Soil Pollution, Marine Pollution, Noise Pollution, Thermal Pollution and Nuclear Pollution.



## Unit-IV

**Environmental Problems and Management Policies:** Natural Disasters-Types, causes and effects; Global warming, Climate change-El Nino-La Nina, Ozone layer- location, role and degradation; Deforestation and desertification. Management: Technological solutions, Preventive methods, control techniques; Green Belt development, Rainwater harvesting, Renewable and alternate resources.

## Unit-V

**National Policy on Environment Protection and Sustainability:** Air (Pollution and prevention) act 1981; Water (Pollution and prevention) Act 1974; Pollution Act 1977; Forest Conservation Act; Wildlife Protection Act; Municipal solid waste management and handling Act; Biomedical waste management and handling Act; Hazardous waste management and handling rules. Role of IT in environment, environmental ethics, environmental economics.

**Sustainable development:** Cause and Threats to sustainability; Strategies for achieving sustainable development; Concept of Green buildings and Clean Development Mechanism (CDM).

## Teaching Methodology

1. White board and marker
2. OHP and Field visit

## Text Books

1. Text Book of Environmental Studies, ErachBarucha. University Press
2. Text book of Environmental Science and Technology by M.Anji Reddy 2007

## Reference Books

1. Biotechnology & Environmental Chemistry. Surinder Jeswal& Anupama Deswal, DhanpatRai & Co Pvt. Ltd.
2. A Text Book of Environmental Science. Aravind Kumar. APH Publishing Corporation.
3. Glimpses of Environment. Dr. KVSG. Murali Krishna. Environmental Protection Society