

**ANDHRA UNIVERSITY
COLLEGE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF ENVIRONMENTAL SCIENCES**



Non-core paper for 2nd Semester under Choice based Credit System : ES 205

REGIONAL AND GLOBAL ENVIRONMENTAL ISSUES

UNIT – I: Environmental Education and Awareness

Environmental education and awareness; the environmental paradox; Ethics of Environment; *Outdated ethics* – The purpose ethic. The myth of super abundance, Dilution is not the solution. The idea of progress; *Updated ethics* – Attitude for survival, Reverence for all life, the right of existence for all environments, according the highest priority to environmental quality. *Environmental problems*: Understanding the nature of environmental problems and identifying the causative factors.

UNIT – II: Global Environmental Problems - I

1. *The threat to the Ozone layer* – National Ozone destroyers, Anthropogenic Ozone destroyers, Nuclear war and the Ozone layer, Supersonic transport and the Ozone layer, CFC's and the Ozone layer, Agricultural fertilizers, nitrous oxide and Ozone layer, Antarctica Ozone hole, The Montreal Protocol, Ozone depletion and related environmental problems, Eco friendly solutions and technologies.
2. *The greenhouse effect* – The carbon cycle and the greenhouse effect, Rising levels of carbon dioxide and temperature change, the contribution of other green house gases, Environmental and socio-economic impacts of increasing greenhouse gases, Global warming and related environmental problems, Eco friendly solutions and technologies, The Kyoto Protocol.

UNIT – III: Global Environmental Problems - II

1. *Atmospheric turbidity (atmosphere aerosols)* – Aerosol types, production and distribution, Aerosols and radiation, volcanic eruptions and atmospheric turbidity, volcanic activity on weather and climate. The human contribution to atmospheric turbidity. The atmospheric turbidity and related environmental problems, Cooling or Warming? Eco friendly solutions and technologies.
2. *Acid rain* – The nature and development of acid rain, the pH scale, The geography of acid rain, Acid rain and geology, Acid rain and the aquatic environment, Acid rain and the terrestrial environment, Acid rain and the built environment, Acid rain and human health, Eco friendly solutions and technologies.

UNIT – IV: Environmental Problems of India and some Ecofriendly Solutions:

Over population, Food security, Health security, Energy security, Environmental security, Negative side of green revolution, Desertification, Deforestation.

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Non-core paper for 3rd Semester under Choice based Credit System : ES 305

ENVIRONMENTAL POLLUTION

Unit-I: Atmosphere

Structure of Atmosphere: Temperature Profile – Influence of Meteorological factors on Air Pollution – *Air Pollutants:* Oxides of Sulphur – Oxides of Nitrogen – Carbon monoxide – Particulate matter, Dispersion and impacts – Photochemical smog – Green house effect – Ozone depletion – Acid Rains – Sources of noise pollution, measurement of noise and standards – impacts of Air Pollution on human health and structures.

Unit-II: Hydrosphere

Classification of water and Water bodies – Abnormal properties of water – Water cycle- Water Quality Parameters – Water Pollution – Sources – Classification, nature and *Toxicology of water pollutants:* Trace metals – Lead – Mercury – Zinc – Cadmium – Organic substances - Pesticides – Oil surfactants – Nutrients – Phosphates – Nitrates – Eutrophication – Ground water pollution – Ocean Pollution by toxic wastes – Ecological and Economic impacts of water pollution.

Unit-III: Lithosphere

Soil: Texture – Composition and distribution – Land use Classification and Patterns – Impacts of land use on soil ecology – Ecological and Economic impacts of soil erosion and soil pollution.

Unit-IV: Noise Pollution, Radioactive Pollution & Thermal Pollution

Noise pollution: Sources, Effects and control methods

Radioactive pollution: Sources, Effects and control methods

Thermal pollution: Sources, Effects and control methods

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