

**PROPOSED DRAFT SYLLABUS ON  
'ENVIRONMENTAL STUDIES'  
for Polytechnic level (WBSCTE)**

**Objective :** After completing the course the students will be able

- To define environmental pollutions and disaster management
- To describe causes and effects of different pollutions like air pollution, water pollution, soil pollution, noise pollution, thermal pollution, nuclear pollution.
- To be aware of the different legislations on environment
- To tackle different social issues related to environment

**GROUP – A**

**UNIT 1 : THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES**

Definition, scope and importance, need for public awareness.

**UNIT 2 : NATURAL RESOURCES**

- Components of Atmosphere
- Biosphere
- Resources- renewable and non- renewable
- Ecology – ecosystem
- Food chain
- Food web
- Biodiversity

**GROUP – B**

**UNIT 3: AIR POLLUTION**

- Primary & secondary pollutants
- Source of pollutants
- Acid rain, green house effect, depletion of ozone layer
- Effect of air pollution on human health, economy, plants, animals

**Air Pollution Control Methods:**

Wet scrubber, Gravitational setting, spray tower, bag filter , ESP, absorption, adsorption, less use of conventional energy, afforestation, proper zoning, catalytic converter, height of chimneys etc.

**UNIT – 4 : WATER POLLUTION**

- a) • Water source: surface and underground water.
- Impurities in water
  - Cause of pollution – natural and anthropogenic
  - Marine water pollution
  - Underground water pollution
  - Source of water pollution
- i) Industrial waste    ii) Municipal waste    iii) Agricultural waste    iv) Radioactive waste  
v) Petroleum    vi) Pharmaceutical.

- b) Effect of water pollution on human health
- c) Concept of dissolved O<sub>2</sub>, BOD, COD
- d) Prevention of water pollution
  - i) Water treatment processes
  - ii) Sewage treatment
- e) Water quality standard

## **UNIT 5 : SOIL POLLUTION**

- Constituents & distribution of soil
- Sources of soil pollution
  - i) Industrial waste    ii) Disposal of human & animal excreta    iii) Chemical fertilizer
  - iv) Pesticide    v) Flyash    vi) Radioactive waste    vii) Municipal waste

### **Solid Waste:**

- a) House hold    b) Hospital    c) Insecticide, pesticide, fungicide (from agriculture)    d) Biomedical
- e) Animal and human excreta    f) Sediments    g) E – waste.

### **Effects of Solid Waste:**

- a) Ground water pollution    b) Increase in infecting agents in soil    c) Soil quality deterioration    d) On human health

### **Disposal of Solid Waste – Solid Waste Management:**

- a) Open dumping    b) Landfilling    c) Incineration
- d) Re – use, reclamation, recycle    e) Composting

## **UNIT 6 : NOISE POLLUTION, THERMAL POLLUTION, NUCLEAR POLLUTION**

### **Noise Pollution:**

- Pleasant sound, noise,
- Significant factors (i) loudness (ii) duration
- Unit of noise
- Source
- Effect of noise pollution
- Different methods to minimize noise pollution
- Acceptable noise level

### **Thermal Pollution:**

- Different source
- Controlling method
- Effects on human health

## **Nuclear Pollution:**

- power station – use of radioactive isotopes – hazards
- R – D segments for pharmaceutical laboratories
- Atomic explosion – weapons
- One important problem in the management of waste
- Effects on human health

## **GROUP – C**

### **UNIT 7 : ENVIRONMENTAL LEGISLATIONS AUTHORITIES & SYSTEMS**

- i) Prevention & control of pollution of wastes Act.    ii) Air (Act) – 1981  
iii) The Environment pollution Act., 1986    iv) Land (prevention & control) Act., 1989  
v) The forest (conservation) Act, 1980    vi) Function of State & Central pollution Board    vii) Montreal protocol  
viii) ISO -14001    ix) ISO - 14000

### **UNIT 8: SOCIAL ISSUES AND ENVIRONMENT**

- Role of individual population
- Rain water harvesting
- Different programmes on family welfare
- General awareness on many diseases, e.g. HIV / AIDS etc.
- Various immunization processes for child, women and other people.
- Roll of NGO
- Roll of educational Institute
- Sanitation and hygiene

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