

**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 O₂, 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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