

IV Year I Semester

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17CE742

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ENVIRONMENTAL POLLUTION

(Open Elective – I)

Course Learning Objectives:

The objective of this course is:

1. Impart knowledge on fundamental aspects of air pollution & control, noise pollution, and solid waste management.
2. Provide basic knowledge on sustainable development.
3. Introduces some basics of sanitation methods essential for protection of community health.
4. Differentiate the solid and hazardous waste based on characterization.

Course Learning Outcomes:

By the end of successful completion of this course, the students will be able to:

- a. Identify the air pollutant control devices
- b. Have knowledge on the NAAQ standards and air emission standards
- c. Differentiate the treatment techniques used for sewage and industrial waste water treatment methods.
- d. Understand the fundamentals of solid waste management, practices adopted in his town/village and its importance in keeping the health of the city.
- e. Appreciate the methods of environmental sanitation and the management of community facilities without spread of epidemics.
- f. Appreciate the importance of sustainable development while planning a project or executing an activity.

SYLLABUS:

UNIT-I

Air Pollution: Air pollution Control Methods–Particulate control devices–Methods of Controlling Gaseous Emissions–Air quality standards.

Noise Pollution : Noise standards, Measurement and control methods–Reducing residential and industrial noise – ISO14000.

UNIT-II

Industrial wastewater Management: – Strategies for pollution control –Volume and Strength reduction – Neutralization – Equalization – Proportioning – Common Effluent Treatment Plants-Recirculation of industrial wastes–Effluent standards.

UNIT- III

Solid Waste Management: solid waste characteristics – basics of on-site handling and collection – separation and processing - Incineration – Composting – Solid waste disposal methods–fundamentals of Land filling.

UNIT-IV

Environmental Sanitation: Environmental Sanitation Methods for Hostels and Hotels, Hospitals, Swimming pools and public bathing places, social gatherings (melas and fares), Schools and Institutions, Rural Sanitation-low cost waste disposal methods.

UNIT-V

Hazardous Waste: Characterization - Nuclear waste – Biomedical wastes – Electronic wastes – Chemical wastes – Treatment and management of hazardous waste - Disposal and Control methods.

UNIT- VI

Sustainable Development: Definition – elements of sustainable developments – Indicators of sustainable development – Sustainability Strategies – Barriers to Sustainability – Industrialization and sustainable development – Cleaner production in achieving sustainability- sustainable development.

TEXTBOOKS:

1. Environmental Engineering, by Ruth F. Weiner and Robin Matthews– 4th Edition Elsevier,2003.
2. Environmental Science and Engineering by J.G.Henry and G.W.Heinke–Pearson Education.
3. Environmental Engineering by Mackenzie L Davis & David A Cornwell. Mc Graw Hill Publishing.

REFERENCES:

1. Air Pollution and Control by M.N.Rao & H.N.Rao
2. Solid Waste Management by K. Sasi Kumar, S.A.Gopi Krishna. PHI New Delhi.
3. Environmental Engineering by Gerard Kiley, Tata Mc Graw Hill.
4. Environmental Sanitation by K V S G Murali Krishna, Reem Publications, New Delhi.
5. Industrial Water Pollution Control by Nemerow Jr., McGraw Hill Publishing.
6. Unit Operations and Processes in Environmental Engineering by Reynolds. Richard – Cengage Learning.
7. Environmental Engineering by D. Srinivasan, PHI Learning Private Limited, New Delhi, 2011.
8. Environmental Engineering – Howard S. Peavy, Donald R. Rowe, Teorge George Tchobanoglus–Mc-Graw-Hill Book Company, New Delhi, 1985.