

1153CE105 (VTUR15)	AIR POLLUTION MANAGEMENT	L	T	P	C
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COURSE CATEGORY: Allied Elective

A. PREAMBLE :

To provide a basic understanding of air pollution and study the effect of air pollution and management. It also helps to understand the control measures and national air quality management.

B. PRE-REQUISITES:

- NIL

C. COURSE EDUCATIONAL OBJECTIVES:

Students undergoing this course are expected to:

- Learn sources of air pollution and identification
- Learn air pollution control and air quality management
- To learn the standards of air pollution in India

D. COURSE OUTCOMES:

Upon the successful completion of the course, learners will be able to

CO	STATEMENT	K LEVEL
CO1	Compare the various sources and respective effects of air pollutants.	K2
CO2	Explain the air pollution meteorology.	K2
CO3	Classify the air pollution control technologies.	K2
CO4	Relate the air quality standards and management policies.	K2
CO5	Summarize the causes and issues of air pollution in India.	K2

E. CORRELATION OF COS WITH POS:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1						M	M					M
CO2	L					L	L					
CO3						M	M					
CO4						M	M					
CO5						M	M					M

F. COURSE CONTENT:

UNIT I SOURCES AND EFFECTS OF AIR POLLUTANTS 9

Sources of air pollution - Classification of air pollutants – Particulates and gaseous pollutants – Source inventory – Effects of air pollution on human beings, materials, vegetation, animals – global warming- ozone layer depletion– Basic Principles of Sampling.

UNIT II DISPERSION OF POLLUTANTS 9

Elements of atmosphere – Meteorological factors – Wind roses – Lapse rate - Atmospheric stability and turbulence – Plume rise – Dispersion of pollutants – Dispersion models – Applications.

UNIT III AIR POLLUTION CONTROL 9

Concepts of control – Principles and design of control measures – Particulates control by gravitational, centrifugal, filtration, scrubbing, electrostatic precipitation – Selection criteria for equipment - gaseous pollutant control by adsorption, absorption, condensation, combustion - Biological air pollution control technologies - bioscrubbers, biofilters, and Indoor air quality.

UNIT IV AIR QUALITY MANAGEMENT 9

Air quality standards – Air quality monitoring - Air pollution control efforts – Zoning – Town planning regulation of new industries – Legislation and enforcement – Environmental Impact Assessment and Air quality – Air pollution measurement methods - Ambient air quality and emission standards - Air pollution indices - Air (Prevention and control of pollution) Act, 1981.

Indian air pollution scenario – National air quality index – Role of central pollution control board in controlling air pollution – Agricultural fires in India – Air quality in Delhi and other polluted cities in India.

TOTAL: 45 Periods

A. LEARNING RESOURCES:**a) TEXTBOOKS**

1. Anjaneyulu, D., “Air Pollution and Control Technologies”, Allied Publishers, Mumbai, 2002.
2. Rao, C.S. Environmental Pollution Control Engineering, Wiley Eastern Ltd., New Delhi, 1996.
3. Rao M.N., and Rao H. V. N., Air Pollution Control, Tata McGraw Hill, New Delhi, 1996.

b) REFERENCES

1. Heumann. W.L., "Industrial Air Pollution Control Systems", McGraw Hill, New York, 1997.
2. Mahajan S.P., "Pollution Control in Process Industries", Tata McGraw Hill Publishing Company, New Delhi, 1991.
3. Peavy S.W., Rowe D.R. and Tchobanoglous G. "Environmental Engineering", McGraw Hill, New Delhi, 1985.
4. Garg, S.K., “Environmental Engineering Vol. II”, Khanna Publishers, New Delhi, 1998
5. Mahajan, S.P., “Pollution Control in Process Industries”, Tata McGraw Hill, New Delhi, 1991.
6. Thod Godesh, "Air Quality, Lewis India Edition, 2013.