AIR POLLUTION & CONTROL

(Open Elective – I)

Course Code	20CE2501A	**Year**	III	**Semester**	I
Course Category	OE-1	**Branch**	Offered by CE	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	-
Continuous Internal Evaluation :	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		**Blooms Taxonomy Level**
Upon successful completion of the course, the student will be able to		
CO1	**Understand** the various types of air pollutants and their effects.	**L2**
CO2	**Examine** the behavior of air pollutants with reference to meteorological parameters	**L3**
CO3	**Analyze** the samples, pollutants from atmosphere	**L4**
CO4	**Identify and Understand** the different methods to control the particulate matter	**L4**
CO5	**Categorize and understand** the methods for the control of pollutants from gaseous emissions	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	2				2	2						2	2
CO2	2	2				2	2						2	2
CO3	3	3	3			3	3						3	3
CO4	2	2	2		2	3	3						2	3
CO5	2	2	2		2	3	3						2	3

Syllabus		
Unit No	**Contents**	**Mapped CO**
I	**AIR POLLUTION & EFFECTS** Air pollution - definitions-scope, significance -air pollutants -classification –natural and artificial-primary and secondary air pollutants. Effect of air pollutants on man-material and vegetation-global effects of air pollution greenhouse effect, acid rains and ozone layer threat.	**CO1**
II	**METEROLOGY AND PLUME DISPERSION** Properties of atmosphere-heat, pressure, wind forces, moisture and relative humidity influence of meteorological phenomenon on air quality- wind rose diagram, inversions and Plume behavior, Gaussian model for plume dispersion.	**CO2**
III	**SAMPLING OF AIR POLLUTION**: Stack sampler; Sampling Procedure- Sampling point – size – Isokinetic Conditions – Sampling of Particulate matter and Gases. Sampling methods–Indian standard methods of analysis of SO_2 and NO_x gases- Air Quality and Emission standards.	**CO3**
IV	**METHODS OF CONTROLLING AIR POLLUTION** Different means of control of effluent discharges into the atmosphere. Control of Particulate matter by equipment -Settling chamber, inertial separators, fabric filters, wet scrubbers, Electrostatic Precipitators	**CO4**
V	**CONTROL OF GASEOUS POLLUTANTS:** Controlling methods of Gaseous Emissions- combustion, adsorption, absorption,closed collections and recovery systems- Control of SO_2 and NO_x gases.	**CO5**

Learning Resources
Text books
1. Air Pollution and Control by Rao M.N and Rao, H.N., Tata McGraw Hill, New Delhi 2007. 2. Environmental Engineering and Management, (2nd Edition) by Suresh, S. K. Kartarai & Sons, 2005.
References
1. An Introduction to Air pollution by Trivedy, R.K., B. S. Publications, 2005. 2. Air pollution by Wark and Warner, Addison-Wesley Publications, 1998.
e-Resources and other Digital Material
https://nptel.ac.in/courses/105102089/8