

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

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	