AIR POLLUTION & CONTROL

Course Code	20CE2501A	**Year**	III	**Semester**	I
Course Category	Open Elective	**Branch**	ECE	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Environmental Science
Continuous Internal Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
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

	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
Avg.	**2**	**2**	**2**		**2**	**3**	**3**						**2**	**3**

1- Low **2-Medium** **3-High**

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	**CO5**

	gases.	

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