

<p style="text-align: center;">Course Title: Air Pollution and Control Professional Elective-1 [As per Choice Based Credit System (CBCS) scheme] SEMESTER:V</p>			
Subject Code	15CV551	IA Marks	20
Number of Lecture Hours/Week	03	Exam Marks	80
Total Number of Lecture Hours	40	Exam Hours	03
CREDITS – 03		Total Marks-100	
<p>Course Objectives: This course will enable students to</p> <ul style="list-style-type: none"> • Study the sources and effects of air pollution • Learn the meteorological factors influencing air pollution. • Analyze air pollutant dispersion models • Illustrate particular and gaseous pollution control methods. 			
Modules		Teaching Hours	Revised Bloom's Taxonomy (RBT) Level
Module -1			
Introduction: Definition, Sources, classification and characterization of air pollutants. Effects of air pollution on health, vegetation & materials. Types of inversion, photochemical smog.		8 hours	L1,L2
Module -2			
Meteorology: Temperature lapse rate & stability, wind velocity & turbulence, plume behavior, measurement of meteorological variables, wind rose diagrams, Plume Rise, estimation of effective stack height and mixing depths. Development of air quality models-Gaussian dispersion model		8 Hours	L1,L2,L3
Module -3			
Sampling: Sampling of particulate and gaseous pollutants (Stack, Ambient & indoor air pollution), Monitoring and analysis of air pollutants (PM _{2.5} , PM ₁₀ , SO _x , NO _x , CO, NH ₃)		8 Hours	L2,L3,L4
Module -4			
Control Techniques: Particulate matter and gaseous pollutants- settling chambers, cyclone separators, scrubbers, filters & ESP.		8 Hours	L3,L4
Module -5			

<p>Air pollution due to automobiles, standards and control methods. Noise pollution-causes, effects and control, noise standards.</p> <p>Environmental issues, global episodes, laws, acts, protocols</p>	<p>8 Hours</p>	<p>L3,L4,L5,L6</p>
<p>Course Outcomes: After studying this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Identify the major sources of air pollution and understand their effects on health and environment. 2. Evaluate the dispersion of air pollutants in the atmosphere and to develop air quality models. 3. Ascertain and evaluate sampling techniques for atmospheric and stack pollutants. 4. Choose and design control techniques for particulate and gaseous emissions. 		
<p>Program Objectives:</p> <ul style="list-style-type: none"> • Engineering knowledge • Problem analysis • Interpretation of data 		
<p>Question Paper Pattern:</p> <ul style="list-style-type: none"> • The question paper will have 5 modules comprising of ten questions. Each full question carrying 16 marks • There will be two full questions (with a maximum of three subdivisions, if necessary) from each module. • Each full question shall cover the topics as a module • The students shall answer five full questions, selecting one full question from each module. If more than one question is answered in modules, best answer will be considered for the award of marks limiting one full question answer in each module. 		
<p>Text Books:</p> <ol style="list-style-type: none"> 1. M. N. Rao and H V N Rao, "Air pollution", Tata Mc-Graw Hill Publication. 2. H. C. Perkins, "Air pollution". Tata McGraw Hill Publication 3. Mackenzie Davis and David Cornwell, "Introduction to Environmental Engineering" McGraw-Hill Co. 		
<p>Reference Books:</p> <ol style="list-style-type: none"> 1. Noel De Nevers, "Air Pollution Control Engineering", Waveland Pr Inc. 2. Anjaneyulu Y, "Text book of Air Pollution and Control Technologies", Allied Publishers 		