

Course Code	Course Name	L-T-P-Credits	Year of Introduction
CE374	AIR QUALITY MANAGEMENT	3-0-0-3	2016

Pre-requisites: Nil

Course objectives:

- To understand the various forms of air pollutants and their effects on human and environment
- To know the various methods of controlling air pollutants

Syllabus : Air pollution-sources, effects on human, vegetation, environment, air pollutants. Indoor pollution. Meteorology, factors affecting dispersion of pollutants, Plume behaviour. Modelling of air pollutants, Dispersion modelling. Monitoring of pollutants-Particulate and gaseous, Control of air pollutants-Methods for particulate and gaseous pollutants, Air quality legislations

Course Outcomes:

- Create an awareness among students regarding air pollution problems
- To understand the various techniques that can be adopted for managing air pollution related problems.

Text Books

1. C.S.Rao, "Environmental Pollution Control Engineering", New Age International Pub., 2006
2. M.N. Rao & H.V.N Rao ,Air Pollution, Tata McGraw Hill Co. Ltd, Delhi, 1990.
3. Peavy H S, Rowe, D.R. Tchobanaglou "Environmental Engineering" McGraw Hill Education, 1985

References:

1. Chhatwal G.R, Encyclopedia of Environmental Pollution and Control, Volumes 1,2,3, Anmol Publications, 1996
2. J. R. Mudakavi, Principles and Practices of Air Pollution Control and Analysis, IK International Pvt Ltd, 2012
3. Perkins H.C, "Air Pollution" McGraw Hill Publications, 2004
4. S C Bhatia, Textbook of Air Pollution and Its Control , Atlantic publishers, 2007
5. S P Mahajan, Air Pollution Control, Common Wealth of Learning, Canada, Indian Institute of Science, Bangalore, 2006
6. Stern.A, "Air Pollution" (Volume I ,II & III) ,Academic Press New York, 1962

COURSE PLAN

Module	Contents	Hours	Sem. Exam Marks %
I	Introduction- Components of Environment- Definition –Air Pollution- History of air pollution episodes-Variou Sources of Air pollution – Air Pollutants- Types of Air Pollutants	6	15
II	Effect of air pollutants on health, vegetation, animals and materials and environment, Green house effect - Indoor Air Pollution, sources of indoor air pollutants	6	15

FIRST INTERNAL EXAMINATION			
III	Meteorological aspects of Air Pollutant Dispersion - Temperature and Pressure relationships-Atmospheric Stability- Temperature Lapse Rate- Inversions- Types, Plume behavior	7	15
IV	Dispersion of Air pollutants-Plume dispersion theory- Gaussian plume model (Derivation not required)- Assumptions-Advantages and Disadvantages- Pasquill's stability curves , Dispersion problems involving point source and line source - Estimation of plume rise.	7	15
SECOND INTERNAL EXAMINATION			
V	Air Quality monitoring - Ambient air sampling - Collection of gaseous air pollutants-Collection of particulate Pollutants- Ambient Air Quality standards	8	20
VI	Control of Air Pollutants- Particulate emission control-methods, Scrubbing-Cyclones- Filtration- Electrostatic Precipitation-Gaseous emission control- adsorption, absorption, thermal methods	8	20
END SEMESTER EXAMINATION			

QUESTION PAPER PATTERN (End semester examination)

Maximum Marks :100

Exam Duration: 3 Hrs

Part A -Module I & II : 2 questions out of 3 questions carrying 15 marks each

Part B - Module III & IV: 2 questions out of 3 questions carrying 15 marks each

Part C - Module V & VI : 2 questions out of 3 questions carrying 20 marks each

Note : 1.Each part should have at least one question from each module

2 Each question can have a maximum of 4 subdivisions (a, b, c, d)