Course Type	Course Code	Name of Course	L	T	P	Credit
DC	ESC 202	Air Pollution	3	0	0	9

Course Objective
The objective of the course is to comprehend the essential concepts of Air pollution
Learning Outcomes
The students should be able to:

- Explain basic principles on various aspects of atmospheric chemistry
- Identify the major sources, effects and monitoring of air pollutants.
- Understand the key transformations and meteorological influence on air
- Relate and analyse the pollution regulation on its scientific basis

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Fundamentals of air pollution: Composition and physics of atmosphere, Stationary and mobile sources; combustion process, fugitive emission; primary and secondary pollutants; POPs, Effects of air pollution on human being, animals, plants; Air pollution episodes – causes and consequences; indoor air quality	10	Understanding the role of air chemistry and effect on human beings, animals and plants.
2	Atmospheric meteorology: Wind profiles, Global circulation, determination of atmospheric stability and mixing height using temperature gradient and effect of topography on atmospheric turbulence , inversions, mixing heights, plume behavior , ventilation co-efficient, theory and application of acoustic sounding (SODAR) technique	11	To understand the atmospheric metrology
3	Air quality monitoring: Air quality sampling network design; analysis and interpretation of data. Air pollution standards and indices, emission factor, emission inventory and emission standards, Prediction of effective stack height- plume rise concept and algorithm, e.g., Holland's equation, Briggs equation, etc.	11	To understand monitoring and analysis of air pollutants
4	Dispersion of air pollutants and modelling: Box model and Gaussian model with derivation and numerical with respect to point, line and area sources, Features and application of regulatory models, e.g., screening model, FDM, ISCST-3, Caline-4 and AERMOD models	10	To Understand the dispersion of air pollutant and prediction through various pollutants

Text Books:

1.Boubel, R. W., Vallero, D., Fox, D. L., Turner, B., & Stern, A. C. Fundamentals of air pollution 4th edition Elsevier, 2008

2. Arthur C. Stern Fundamentals of air pollution 2nd edition, Elsevier, 1984

3. CS Rao, Environmental Pollution Control Engineering- Wiley Eastern Ltd., New Delhi, Latest Edition

Reference Books

1. De Nevers, N., Air Pollution Control Engineering, 3rd edition Waveland Press Inc 2016.

2. Peterson, A.P.G., Handbook of Noise Measurement General Radio Inc 1980.