4th Semester	**REV4C003**	**Air and Noise Pollution**	**L-T-P 3-0-0**	**3 CREDITS**

MODULE –I (09 Hrs.)

AIR POLLUTION:
Atmospheric structure and composition, scales of air pollution problem- local, urban, regional, continental and global. Natural and anthropogenic pollutants, emission inventory source classification, primary and secondary pollutants, properties of major air pollutants along with sources and sinks, particulates and gases. Modules of measurements of air pollutant. Simple problems on Module conversion. Photochemical air pollutants, Air pollution due to automobiles. Smoke and its measurement.

Air pollutants effects on human health and welfare, vegetation, animals, materials and structure, Acid rain, Greenhouse effect, Ozone layer depletion and Heat island effect.

MODULE - II (09 Hrs.)

MEASUREMENT OF AIR POLLUTANTS.

Measurement of gaseous (CO, HC, NO_x,SO_x) and particulate pollutants, sampling devices, sampling train, sampling methods/ techniques, stack sampling techniques. Ambient Air quality standard (CPCB). Air pollution indices- determination of pollution index by different methods.

MODULE -III (12 Hrs.)

ATMOSPHERIC DISPERSION OF STACK EFFLUENTS: Plume rise, effective stack height, guide lines for fixing stack height, problems on plume rise' calculations. Gaussian plume model- for point source. Gaussian dispersion coefficients, Pasquil - Gifford atmospheric stability classification.

METEOROLOGY: Meteorological factors- heat, solar radiation, temperature, lapse rate, wind, humidity, precipitation, mixing height, pressure, atmospheric stability conditions, wind velocity profile, wind-rose diagram. Inversion- types, plume behavior under different atmospheric stability, effect of topography on pollutant dispersion.
Down ground-level concentration computation, maximum ground level concentration. Instantaneous puff. Dispersion model. Estimate for various sampling times and decay of pollutant.

MODULE – IV (07 Hrs.)

NOISE POLLUTION: Sources of noise, effects of noise pollution, Modules & measurement of noise, control of noise pollution, standards. Equations & Application.

MODULE – V (10 Hrs.)

AIR POLLUTION CONTROL: Removal of gaseous pollutants by adsorption, absorption, reaction and other methods. Particulate emission control, settling chambers, cyclone separation, Wet collectors, fabric filters, electrostatic precipitators and other removal methods.

Books:

- Sewage Disposal and Air Pollution Engineering, S.K. Garg, Khana Publishers.
- Air pollution M.N Rao & H.V.N. Rao. TMH
- Environmental Engineering, Peivy and Rowe.
- Air pollution Control Engineering, Noel De Nevers, Mcgrawhill Int Edition.
- Wark.K., Warner C.F. and Davies W.T., Air Pollution- Its Origin and Control., Harper &. Row Publishers, New York, 1998.
- Boubel R.W., Donald L.F., D.B. Turner &. A.C. Stern Fundamentals of Air Pollution, Academic Press, 1994.
- Sincero A.P. and Sinccro G.A., Environmental Engineering- A Design Approach., Prentice of India, 1999.
- Henery. C. Perkins-Air Pollution McGraw Hill.