EVPC2003 AIR AND NOISE POLLUTION CONTROL (3-0-0)

The objective of the course is

- To impart the knowledge and understanding of causes and effects of air pollution and their controlling mechanisms.
- To provide a deeper understanding of air pollutants, pollution inventory and modelling.
- To impart knowledge on the impacts of air pollution on different aspects such as policy, human health and various contemporary technological innovation for betterment of air quality.
- To study the of noise pollution and measures for controlling noise pollution

UNIT - I (08 Hours)

Air pollutants, Sources, classification, Combustion Processes and pollutant emission, Effects on Health, vegetation, materials and atmosphere, Reactions of pollutants in the atmosphere and their effects, Smoke, smog and ozone layer disturbance, Greenhouse effect.

UNIT - II (08 Hours)

Air sampling and pollution measurement methods, principles and instruments, ambient air quality and emission standards, Air pollution indices, Air Act, legislation and regulations

UNIT - III (08 Hours)

Control principles, 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 like absorption, adsorption, precipitation etc. Biological air pollution control technologies, Indoor air quality.

UNIT - IV (10 Hours)

Noise pollution: Basics of acoustics and specification of sound; sound power, sound intensity and sound pressure levels; plane, point and line sources, multiple sources; outdoor and indoor noise propagation; psychoacoustics and noise criteria, effects of noise on health, annoyance rating schemes; special noise environments: Infrasound, ultrasound, impulsive sound and sonic boom; noise standards and limit values; noise instrumentation and monitoring procedure. Noise indices. Noise control methods

Course outcomes

At the end of the course students will be able to:

1. Understand sources of air pollution, air pollution problems and the effect of meteorological parameters in the dispersion of air pollutants
2. Analyse Environment legislation and regulations for air and noise pollution
3. Evaluate efficiency of various air pollution control devices used for particulate removal
4. Design, operate and control the devices used for gaseous emission control and noise emission control

Books:

1. C. S. Rao, “Environmental Pollution Control Engineering”, Wiley Eastern Limited, 2000.
2. M. N. Rao, H. V. N. Rao, Air pollution, Tata McGraw Hill Pvt. Ltd, New Delhi, 1993.
3. G.K. Nagi, M.K. Dhillon, G.S. Dhaliwal, Commonwealth Publishers, Noise Pollution.
4. S.K. Garg, Khanna publishers, Sewage Disposal and Air Pollution Engineering.
5. S.M. Khopkar, Environmental pollution analysis, New Age International Publications
6. D. B. Botkin, and E.A. Keller, Environmental Science, 8ed, Wiley