

# GUJARAT TECHNOLOGICAL UNIVERSITY

## PDDC SEMESTER : VII

### CIVIL ENGINEERING

Subject Name: **AIR POLLUTION CONTROL**

| Sr. No. | Course Contents                                                                                                                                                                                                                                                                                                                                                       |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.      | History of Air pollution and episodes, Sources of air pollution and types, Introduction to meteorology and transport of air pollution: Global winds, Hadley cells, wind rose terrestrial wind profile, Effects of terrain and topography on winds, lapse rate, maximum mixing depths, plume rise                                                                      |
| 2.      | Transport of Pollution in Atmosphere: Plume behaviour under different atmospheric conditions, Mathematical models of dispersion of air pollutants, Plume behaviour in valley and terrains. Plume behaviour under different meteorological conditions, Concept of isopleths                                                                                            |
| 3.      | Effects of Air Pollution on human beings, plants and animals and Properties. Global effects-Green house effect, Ozone depletion, heat island, dust storms, Automobile pollution sources and control, Photochemical smog, Future engines and fuels                                                                                                                     |
| 4.      | Air Pollution control- at source-equipments for control of air pollution-For particulate matter-Settling chambers-Fabric filters-Scrubbers-Cyclones-Electrostatic precipitators , For Gaseous pollutants-control by absorption-adsorption-scrubbers-secondary combustion after burners, Working principles advantages and disadvantages, design criteria and examples |
| 5.      | Air Quality Sampling and Monitoring: Stack sampling, instrumentation and methods of analysis of SO <sub>2</sub> , CO etc, legislation for control of air pollution and automobile pollution                                                                                                                                                                           |

**Note:** Each module carries equal weightage

**Term work:** Tutorial problems based on above mentioned syllabus

**Text Books:**

1. H.C Parkins, Air Pollution Mc Graw Hill Publication
2. H.S. Peavy, D.R. Row & G. Tchobanoglous, Environmental Engineering, Mc Graw Hill International Edition
3. Martin Crawford, Air Pollution Control Theory, TMH Publ.