

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

## Master of Environmental Engineering

Subject Name **Major Elective3.2**  
**AIR POLLUTION CONTROL**

Sr.No	Course content
1	<b>Air Pollution</b> : Natural and Anthropogenic Sources, Types, Effects of air pollutions.
2	<b>Methods of Measurements of Air Pollutants</b> :Sampling modes, Sampling system ,Sampling analysis for Grit and Dust, Smoke, Sulphur oxide, Carbon monoxide, Hydrocarbon, Oxides of nitrogen, Ozone and other air pollutants .
3	<b>Ambient Air Quality Standards</b> :International and Indian Standards , Specifications and methods.
4	<b>Transport of Air Pollutants</b> :Meteorology and topography affecting Pollutant dispersion, Models of pollutant dispersion .
5	<b>Height and Design of Chimney</b> :Height, Flue gas quality and temperature, Thermal shocks, Lateral dimension, Reduction of heat losses, Choice of materials
6	<b>Control equipments</b> :Theory of control for particulate and gaseous pollutants. Types, features and operations, Selection and application.
7	<b>Control of Gaseous Pollutants</b> :.Absorption, Adsorption, Combustion , and catalytic processes.
8	<b>Control of Particulate Matters</b> :Types, Features, Operations, Selection of Equipments and applications.
9	<b>Vehicular Pollution and Control</b> :Types Sources of Automobile Air Pollution . Control of Air Pollution by Automobiles Vehicle emission standards and fuel quality, Inspection and certification programme.

### List of Experiments.

1. Meteorological parameters and their measuring instruments
2. Use of sampling instruments for collection and analysis of parameters like SPM , RSPM, and other parameters
3. Determination of Gaseous pollutants like CO, CO<sub>2</sub> , NO<sub>x</sub> and SO<sub>x</sub> and other pollutants with most recent method of sampling and analysis
4. Use of Exhaust gas analyser with IR and other technique based on line and off line instruments
5. Demonstration of Stack Monitoring Unit
6. Field experiments of vehicular traffic induced air pollutants
7. Experiment on pollutant dispersion with artificially created air pollution
8. Problems based on Diffusion equation and other related topics
9. Project on Air pollution Problem of an area

### Reference Books:

1. Air Pollution by Perkins H.C. - Tokyo, McGraw Hill
2. Air Pollution and its Origin & Control by Wark & Warner C.F. - New York, IEP, A Dun Donnelley Publication - 1976
3. Air Pollution Control Theory by Crawford - Tata McGraw Hill
4. Industrial Air Pollution Hand Book by Albert Parker - McGraw Hill Book Co.
5. Air Pollution by M.N. Rao McGraw Hill