

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: I Environmental Management

Subject Name Air Pollution Control and Management

Sr.No	Course content
1.	<p>Introduction:</p> <p>Air pollution systems, air pollutants, atmospheric particulate matters, atmospheric pollution concentration levels, Meteorology: temperature in lower atmosphere, winds and wind roses. Brief introduction to the Gaussian Plume Equation: Gaussian concentration equation, Point source dispersion formula, dispersion parameters in Gaussian models, plume rise.</p>
2.	<p>Air pollution sampling and measurement:</p> <p>Ambient air sampling, stack monitoring, analysis of air pollutants, viz., SO₂, NO_x, CO, oxidants, ozone, hydrocarbons and particulate matters, sampling and estimation of gaseous pollutants of transport vehicles and inside of industrial units and laboratories.</p>
3.	<p>Control of Particulate matter:</p> <p>Introduction, distribution and sources of particulate matter, size distribution and collection mechanism, control devices; viz., Gravitational Settling Chambers, Centrifugal collectors, wet collectors, fabric filters, electrostatic precipitators.</p>
4.	<p>Control of gases and vapours:</p> <p>Adsorption, absorption, design of adsorption tower, design of absorption tower, condensation and combustion, use of catalysts.</p>
5.	<p>Control of specific gaseous pollutants:</p> <p>Control of sulphur dioxide emission, desulphurization of flue gases, dry methods, wet scrubbing methods, control of nitrogen oxides, carbon monoxide and dioxide and hydrocarbons, air pollution surveys.</p>
6.	<p>Air quality and emission standards, air pollution indices, and miscellaneous current topics.</p>
7.	<p>Disaster management in case of failure of control equipment</p>

List of Practical's and Term work:

1. Practical's based on working following instruments.
 - High Volume Air Sampler.
 - Stack Monitoring Kit.
 - VOC monitor
 - Flue Gas Analyzer.
 - Weather Monitoring Station.
 - CO monitor.
2. Term work will comprise of assignments and exercises based on Meteorology, Gaussian Dispersion Model, Estimation of Ground Level Concentration, Air Quality Standards, Emission Standards, Gravitational Settling Chambers, Centrifugal Collectors, Wet Collectors, Fabric Filters and Electro Static Precipitator.
3. Field Visit: To demonstrate the working of Stack Monitoring Kit

Reference Books:

1. Air pollution: By K Wark and C Warner
2. Air Pollution control: By De Nevers
3. Environmental Pollution control engineering: By C S Rao
4. Air pollution control: By Howard and Hesketh
5. Air Pollution Volume I to VII: By Stern
6. Air Pollution: By Seinfeld