19CE4602E – AIR POLLUTION AND ITS CONTROL

Course Category:	Program Elective	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	19MC1301- Environmental Sciences	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Understand** of contemporary pollution issues.	K4
CO2	**Analyze** specific examples of various sources of air pollution.	K4
CO3	**Comprehend** the causes and effects of key types of air pollution.	K4
CO4	**Classify** of different pollution control strategies	K4
CO5	**Assess** the air sampling methods for safe air quality management.	K3

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2						3						1	
CO2	2						3						1	
CO3	2						3						1	
CO4	2						3						1	
CO5	2						3						1	

1- Low **2-Medium** **3-Hig2h**

Course Content

UNIT-1	**AIR POLLUTION** Air pollution - definitions-scope, significance -air pollutants -classification – natural and artificial-primary and secondary, point and non-point. EFFECT OF AIR POLLUTION Effect of air pollutants on man-material and vegetation-global effects of air pollution greenhouse effect, heat lands, acid rains and ozone.	**CO1**
UNIT-2	**METEROLOGY AND PLUME DISPERSION** Properties of atmosphere-heat, pressure, wind forces, moisture and relative humidity influence of meteorological phenomenon on air quality- wind rose diagram. **LAPSE RATE** Lapse rate, pressure systems, wind and moistures, inversions and plume behaviour, plume rise models.	**CO2**
UNIT-3	**METHODS OF CONTROLLING** Control of particulates-control at sources-controlling equipment-settling chamber centrifugal separators-fabric filters –dry and wet scrubbers-electrostatic precipitators. **GASEOUS POLLUTANTS** General Methods of Controlling Gaseous Emission-adsorption-absorption-combustion condensation-SO_X control- NO_X control-technologies	**CO3**
UNIT-4	**INPLANT CONTROL MEASURES** Process Change-Dry and Wet Methods of Removal and Recycling-Dust Collection Devices-Internal Separators-Catalyst Reduction	**CO4**
UNIT-5	**SAMPLING AT SOURCE** Flue Gases-Emission Standards-Gaseous Sampling. **AIR QUALITY MANAGEMENT**	**CO5**

	Air Quality Management-Monitoring of Suspended Particulate Matter, Gaseous matter. Air Act.	

Learning Resources

Text Books	1.Air Pollution and Control by Rao, M.N and Rao, H.N., Tata McGraw Hill, New Delhi 2007. 2. Environmental Engineering and Management, (2nd Edition) by Suresh, S.K.Kartarai & Sons, 2005.
Reference Books	1. An Introduction to Air pollution by Trivedy, R.K., B.S. Publications, 2005. 2. Air pollution by Wark and Warner, Addison-Wesley Publications, 1998.
e-Resources& other digital material	http://nptel.ac.in